DURUM WHEAT

QUALITY REPORT

Physical, Chemical, Milling, and Macaroni Characteristics

1979 CROP

UNITED STATES DEPARTMENT OF AGRICULTURE
SCIENCE AND EDUCATION ADMINISTRATION, AGRICULTURAL RESEARCH
North Central Region

and

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION
Department of Cereal Chemistry and Technology

UNITED STATES DEPARTMENT OF AGRICULTURE
SCIENCE AND EDUCATION ADMINISTRATION, AGRICULTURAL RESEARCH
in cooperation with
STATE AGRICULTURAL EXPERIMENT STATIONS

QUALITY EVALUATION OF DURUM WHEAT VARIETIES

1979 CROP[1/]

by

R. D. Maneval, Food Technologist; R. D. Crawford and A. A. Ottenbacher, Technicians; N. B. Lofthus, Secretary; Science and Education Administration, Agricultural Research, North Central Region. Participants from the Department of Cereal Chemistry and Technology, North Dakota Agricultural Experiment Station were: O. J. Banasik, Department Chairman, L. L. Nolte, M. Skunberg, S. Vasiljevic, and Y. Holm, Technicians. Research Leader, V. L. Youngs, (SEA-AR).

Contents	Page No.

1/ This is a progress report of cooperative investigations containing some results that have not been sufficiently confirmed to justify general release; interpretations may be modified with additional experimentation. Confirmed results will be published through established channels. The report is primarily a tool for use of cooperators and their official staffs and to those persons having direct and special interest in the development of agricultural research programs.

This report was compiled by the Science and Education Administration, Agricultural Research, U.S. Department of Agriculture. Special asknowledgment is made to the North Dakota State University for their facilities and services provided in support of these studies. The report is not intended for publication and should not be referred to in literature citations or quoted in publicity or advertising. Use of the data may be granted for certain purposes upon written request to the agency or agencies involved. Cooperators submitting samples for analysis have been given analytical data on their samples prior to release of this report.

Hard Red Spring and Durum Wheat Quality Laboratory
Fargo, North Dakota

COOPERATING AGENCIES, STATIONS, AND PERSONNEL

The cooperating agencies, stations, and personnel conducting the varietal plot and nursery experiments concerned with these durum tests in 1979 were as follows:

Arizona Agricultural Experiment Station:

Mesa: R. K. Thompson

Tucson: D. K. Parsons

California Agricultural Experiment Station:

Davis, El Centro and Tulelake: W. F. Lehman, Y. P. Puri, and C. O. Qualset

Minnesota Agricultural Experiment Station:

Crookston, Morris, and Stephen: R. Busch*, J. Wiersma, and D. D. Warnes

Montana Agricultural Experiment Station:

Sidney and Havre: F. H. McNeal*, G. P. Hartman, and R. T. Harada

North Dakota Agricultural Experiment Station:

Williston: J. S. Quick, E. French, and N. Riveland

Oregon Agricultural Experiment Station:

Klamath Falls: C. Crampton

South Dakota Agricultural Experiment Station:

Selby and Watertown: J. J. Bonneman and D. L. Keim

Washington Agricultural Experiment Station:

Royal Slope: C. F. Konzak, M. A. Davis, and E. Donaldson

* SEA/AR Employees

COOPERATING AGENCIES, STATIONS, AND PERSONNEL

[illegible]

Arizona Agricultural Experiment Station

[illegible]

[illegible]

California Agricultural Experiment Stations

Davis, El Centro and Tulelake: [illegible]

Minnesota Agricultural Experiment Station

Crookston, Morris, and Rosemount: [illegible]

Montana Agricultural Experiment Station

[illegible]

North Dakota Agricultural Experiment Station

[illegible]

Oregon Agricultural Experiment Station

Klamath Falls (?): [illegible]

South Dakota Agricultural Experiment Station

[illegible]

Wyoming Agricultural Experiment Station

[illegible]

[illegible]

INTRODUCTION

The sixteenth Durum Wheat Quality Report contains data for the 1979 crop. Samples of standard varieties and new strains of durum wheat grown in cooperative experiments in the durum wheat region of the United States[2/] were milled and evaluated by the Hard Red Spring and Durum Wheat Quality Laboratory in cooperation with the Department of Cereal Chemistry and Technology on the campus of North Dakota State University at Fargo, ND. The evaluation of some of the durum wheats is integrated with the work done by the Department of Cereal Chemistry and Technology of North Dakota State University. Methods and techniques are described in detail in the text of the report.

Where sufficient quantity of sample was available for macro or micro processing, the semolina was processed into spaghetti to determine the quality characteristics. When the quantity of semolina was insufficient (micro quantity), only the color of the semolina (Gardner[3/] color score) was determined.

The purpose of this report is to make available to cooperators the quality data on standard varieties and new strains of durum wheat from the 1979 crop.

2/ Busch, R. H. and Quick, J. S. Wheat varieties grown in cooperative plot and nursery experiments in the spring wheat region in 1979. Science and Education Administration/Agricultural Research, U.S. Department of Agriculture.

3/ Mention of a trademark name or proprietary product does not constitute a guarantee or warranty of the product by the U.S. Department of Agriculture, and does not imply its approval to the exclusion of other products that may also be suitable.

SOURCE OF THE 1979 CROP SAMPLES

Seven hundred fifty-six durum samples were received from 16 stations and eight states (Arizona, California, Minnesota, Montana, North Dakota, Oregon, South Dakota, and Washington) for quality evaluation as follows:

Uniform Regional Nursery (170 samples): Crookston and Morris, MN; Havre and Sidney, MT; Williston, ND; and Selby and Watertown, SD. The varieties and selections included in this nursery are listed on page 5. In addition, different uniform nursery samples were received from Stephen, MN; Williston, ND; and Havre and Sidney, MT. A Tulelake durum nursery from Tulelake, CA was also received.

Western Regional Durum Nursery (67 samples): Tulelake, CA; and Royal Slope, WA. The varieties and selections included in this nursery are listed on page 6.

Field Plots (158 samples): Mesa, AZ; Davis, Imperial Valley, Kings Co., and Tulelake, CA; and Williston, ND.

Advanced Nursery (311 samples): Tulelake, CA; and Royal Slope, WA.

Special Nursery (50 samples): Tucson, AZ; Klamath Falls, OR; and Royal Slope, WA.

1979 CROP UNIFORM REGIONAL DURUM NURSERY

Entry No.	Entry	C.I. or Sel. No.	Year Entered	Origin
1	Mindum	5296	1929	Minnesota
2	Rolette	15326	1968	ND-USDA
3	Ward	15892	1969	"
4	Crosby	17282	1970	"
5	Botno	17283	"	"
6	Rugby	17284	"	"
7	Cando	**17438	1972	North Dakota
8	Calvin	**17747	1973	"
9	Coulter	DT411	1974	Manitoba
10	Edmore	17748	"	North Dakota
11	Vic	17789	1976	"
12	6530/6654	**D7224	"	"
13	Ward/Macoun	DT427	1978	Manitoba
14	Ward/68139	D7483	"	North Dakota
15	Wc/Ward	D75140	"	"
16	Wkm/Rugby	D75171	"	"
17	Wkm/Rolette	D75209	"	"
18	7233/Edmore	D763	"	"
19	Wc/Rolette	D75184	1979	"
20*	Cando/Edmore	**D771	"	"
21*	"	**D772	"	"
22*	"	**D773	"	"
23*	"	**D774	"	"
24*	"	**D775	"	"

* Grown only at North Dakota and Canada stations.
** Semidwarfs

1979 CROP WESTERN DURUM NURSERY

Entry No.	Status	Accession No.	Name, Pedigree or Designation
1	Check	CI015070	WANDELL
2	Check	CI017466	MODOC
3	Check	CI17438	CANDO
4	Check	WA006292	WA6030/CRANE S.160-3
5	Old	CA000304	ND6644*2 A63038
6	Old	CA000307	ND6654/2* ACC63038
7	Old	CA000310	SENTRY/A63040//LEEDS
8	Old	CA000313	A6 3040/SENTRY//LEEDS
9	Old	CA000319	(SENT/*A63040)LEEDS
10	Old	TL-75393	67-2011/66-335/2/SENTRY/67-2000
11	Old	TL-75409	LEEDS/66-335/2/67-2011/66-335
12	Old	WA006284	PLAC 20871
13	Old	WA6518	WA6030/CRANE S.211-7
14	Old	WA6520	WA6030/MD000102 S.17
15	Old	WA6521	E7013273-4-5 K6800707 MUTANT S.1
16	Old	WA6523	YT54//NOR10/BvR/3/LD357/4/2*TC*2/5/YFN
17	Old	WA6524	YT54//NOR10/BvR/3/LD357/4/2*TC/5/YFN
18	Old	WA6525	YT54//NOR10/BvR/3/LD357/4/2*TC*2/5/YFN
19	New	WA6621	WA6030/CRANE,S4-4
20	New	WA6622	WA6030/MD102,S16
24	New	WA6626	WA6030/CRANE,S25
25	New	WA6627	WA6030/PI66897-516,S178
27	New	WA6629	PI165199/WA6030
28	New	WA6630	PI271897-1/NDD66102
29	New	WA6631	PI271897-1/NDD66102
30	New	WA6632	PI271897-1/NDD66102
31	New	WA6633	PI271897-1/NDD66102
32	New	WA6634	PI271897-1/WA6030
34	New	WA6636	PI271897-1/NDD66102
35	New	WA6637	WA6030/PI245649-4.S313
36	CI017691	LOCAL CHECK	Bread Wheat WAMPUM

METHODS

The methods used in the testing of the samples were essentially the same as given in the last report.

Briefly, the following methods and terminologies were applied:

Test Weight Per Bushel (TW) - The weight per Winchester bushel of dockage-free wheat.

Thousand Kernel Weight (KW) - The 1000 kernel weight was determined by counting the number of kernels in a 10 g sample of cleaned, picked wheat on a Seedburo seed counter.

Kernel Size (LG, MD, SM) - The percentage of the size of the kernels [large (LG), medium (MD), and small (SM)] was determined on a wheat sizer as described by Shuey4/.

The sieves of the sizer were clothed as follows:

Top Sieve	-	Tyler # 7 with 2.92 mm opening
Middle Sieve	-	Tyler # 9 with 2.24 mm opening
Bottom Sieve	-	Tyler #12 with 1.65 mm opening

Protein Content (PR) - The protein (14% m.b.) was calculated by multiplying the percent nitrogen, as determined by the standard Kjeldahl procedure, by the factor of 5.7.

Milling - The samples were cleaned by passing the wheat over an Emerson kicker and dockage tester and through a modified Forster scourer Model 6. The clean, dry samples were pretempered to 12.5% for at least 72 hours prior to any additional tempering before milling.

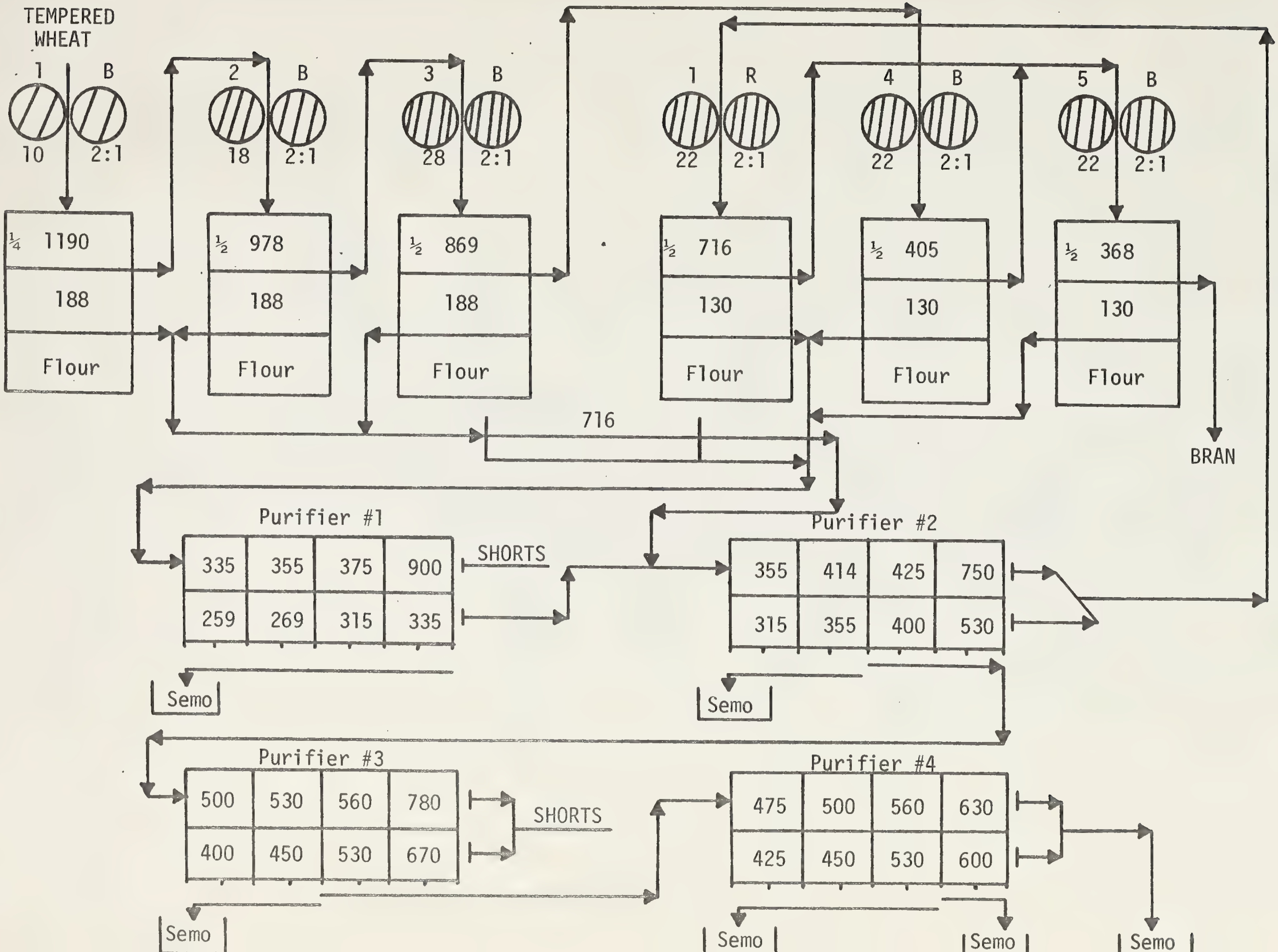
The field plot and large advanced yield nursery samples were milled on a Buhler experimental mill specially designed for milling durum wheat. The mill is equipped with corrugated rolls throughout and the semolina purified on a Miag laboratory purifier. All of the stock is handled pneumatically. The mill flow is shown on page 8. The clean, dry wheat was tempered in three stages: first to 12.5% moisture at least 72 hours prior to the second stage which is to add an additional 2.0% for 18 hours to give a cumulative moisture of 14.5%, then a final temper of 3.0%, 45 minutes prior to milling. The purified semolina is used in testing the quality of semolina. The semolina extraction was calculated on a total products basis.

The small samples were milled according to the method of Vasiljevic et al. 5/. The flow diagram of this system is shown on page 9. Extraction is determined on a clean, dry basis.

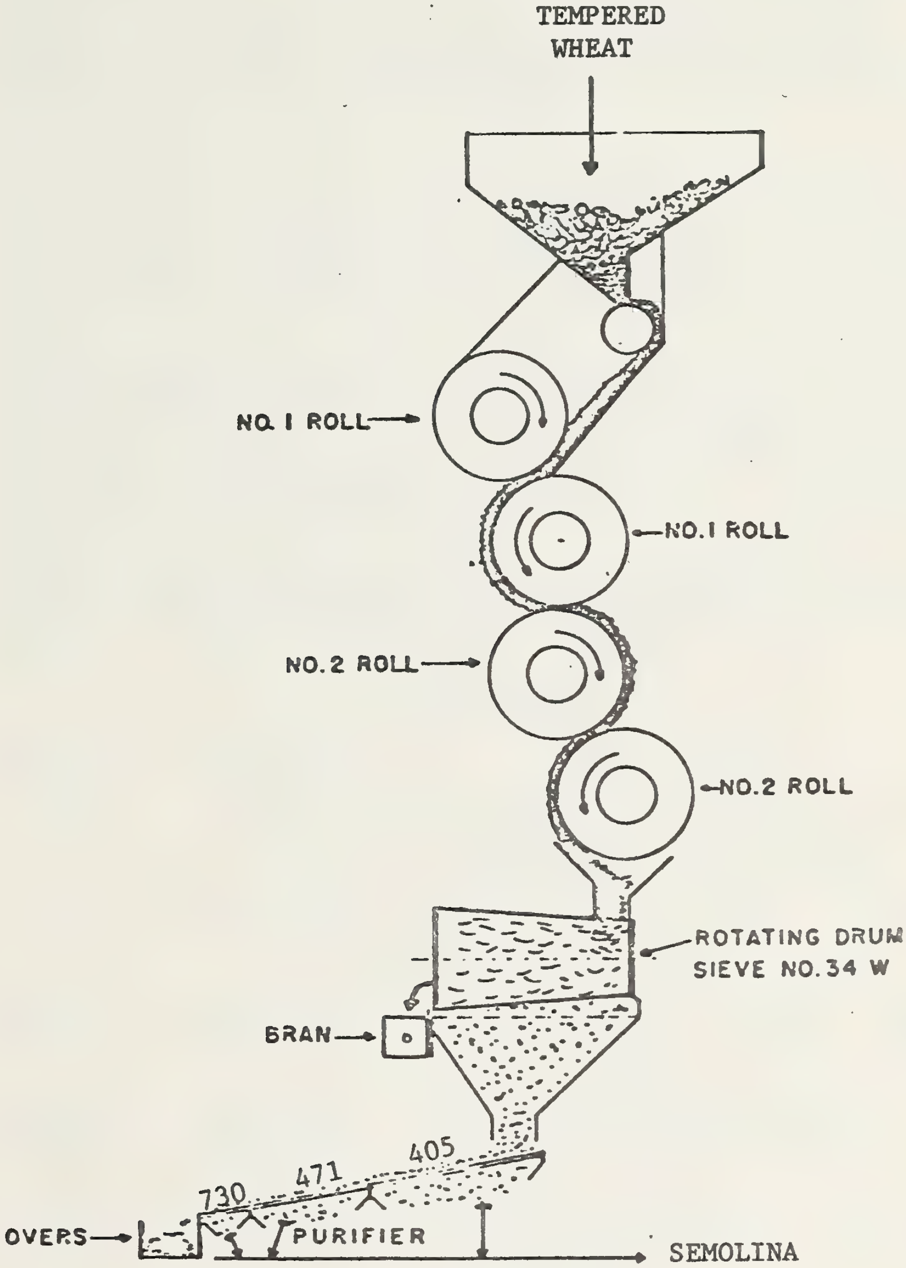
4/ Shuey, William C. A wheat sizing technique for predicting flour milling yield. Cereal Sci. Today 5: 71 (1960).

5/ Vasiljevic, S., Banasik, O. J., and Shuey, W. C. A micro unit for producing durum semolina. Cereal Chem. 54: 397 (1977).

FLOW DIAGRAM FOR LARGE DURUM WHEAT SAMPLES
MACRO PROCEDURE



FLOW DIAGRAM FOR SMALL DURUM WHEAT SAMPLES
MICRO PROCEDURE



Semolina Extraction (SEEX) - The percent semolina calculated on a total products basis.

Speck Count (SP) - The number of specks in three different one-inch square areas of semolina enclosed by a special glass and frame were counted. Any materials other than pure endosperm chunks, such as bran particles, etc. were considered specks. The average of three readings was converted to the number of specks per 10 sq in (speck count).

Color Score - The color of the spaghetti or semolina has been generally accepted as the most important single grading factor. A deep amber or golden color is the most preferable. The amount of yellow pigmentation determines the extent or degree of amberness.

Samples which have a color rating 1.5 points below the standard spaghetti score or 9 points below the standard semolina color score are unsatisfactory. It is possible that the average color score for a crop year may be higher or lower than average; therefore, this would be taken into consideration when giving the overall rating of a variety over a number of years.

The grading system shown below has been adopted for scoring the color of semolina and spaghetti relative to the standard color score.

COLOR SCORE

Semolina	Spaghetti	Description
9 above	1.5 above	Much deeper and intense yellow pigmentation than standard
6 above	1.0 above	Deeper and more intense yellow pigmentation than standard
3 above	0.5 above	Slightly deeper and more intense yellow pigmentation than standard
Equal to Standard	Equal to Standard	Standard quality, depth and intensity of yellow pigmentation
3 below	0.5 below	Slightly less depth and intensity, but sufficient quantity of pigmentation
6 below	1.0 below	Slightly less quantity as well as depth and intensity of pigmentation than the standard, but still sufficient to be rated satisfactory on the basis of color
9 below	1.5 below	Sufficiently less quantity of yellow pigmentation than the standard to give a pale yellow color and graded unsatisfactory for color score.

Semolina Color Score (DU) - The semolina color score was determined by using Model XL-10 Gardner digital color difference meter. The instrument was calibrated using a yellow standard tile (L = 82.5, a = -3.6, and b = +25.2). A sample of semolina (3/4-inch deep) is placed in a sample cup for an Agtron reflectance color meter. After the first reading has been taken, the sample is turned 90 degrees and a second reading is taken and the two readings averaged. The "b" color value is converted to a color score ranging from 1 to 14, with 14 being a deep yellow and the most desirable color. In this report, the semolina color score, reported as "DU" in the tables, is multiplied by a factor of 10.

Spaghetti Color (VI) - The spaghetti color scores were determined on a Model D25 Hunter color difference meter equipped with a D25A optical unit. The specimen area (2 in diameter) was covered with straight spaghetti strands and readings were taken against a black background with 0% reflectance. Color difference values (L%, a%, and b%) were measured for all the spaghetti samples by the method of Walsh, Gilles, and Shuey[6/]. A uniform chromaticity chart was used for determining spaghetti color scores.

MACRO Spaghetti Processing - Spaghetti was processed on a semi-commercial scale pasta extruder (DEMACO). The control as well as sprouted durum was processed with the following extruding conditions.

Temperature . . . . 49.5°C

Rate. . . . . 12 rpm

Absorption. 31.5%

Vacuum. . . . . 18 in Hg

These were the optimum conditions for processing spaghetti, which were calculated by a linear programming technique.

To process the pasta, 1000 g batch[7/] was premixed by slowly adding the water and mixing at a slow speed for approximately 30 seconds, and high speed for 10 seconds, then add the remainder of the water at slow speed in a Hobart C-100-T mixer equipped with a pastry knife agitator. After all of the water has been added, the semolina and water are blended at high speed for 30 seconds; the mixer was stopped to scrape down the sides of the bowl and the blending continued for 90 seconds more to complete the premix stage. The

---

6/ Walsh, D. E., Gilles, K. A., and Shuey, W. C. Color determination of spaghetti by the tristimulus method. Cereal Chem. 46: 7 (1969).

7/ Weight was determined as follows:

$$\left[\frac{100-m_1}{100-m_2} - 1\right]\left(W - W\,(m_2-m_1)\right) = \text{Amount } H_2O \text{ added}$$

where:
m_1 = original moisture
m_2 = desired moisture
W = desired amount of sample

premixed pasta was then transferred to the vacuum mixer of the press and extruded through an 84-strand 0.043 in teflon spaghetti die. A jacketed extension tube (9¼" long x 1-3/4" inside diameter) was attached to the semicommercial pasta extruder to allow more time for hydration of the semolina and minimize the number of white specks (unhydrated semolina) in the spaghetti. Extrusion temperature was controlled by a circulating water bath.

MICRO Spaghetti Processing - Thirty grams of semolina were mixed with water to form a stiff dough, pressed into spaghetti and dried. The equipment and procedure have been described by Harris and Sibbitt[8/] and Fifield[9/].

Spaghetti Drying - Spaghetti was dried in an experimental pasta dryer for an 18 hour cycle as described by Gilles, Sibbitt, and Shuey[10/]. During the drying period, the humidity of the dryer was decreased linearly from 95 to 60% R.H. and the temperature was held constant at 100°F.

Cooking Characteristics of Spaghetti -

a. Cooking Procedure

A modification of the method of Sheu *et al.*[11/] was adopted to determine cooking quality of spaghetti used in this study. Spaghetti (10 g) which had been broken into lengths of approximately 5 cm, was placed into 300 ml of boiling 1% NaCl salt solution in a 500 ml beaker. After 10 minutes cooking, the samples were washed thoroughly with distilled water in a Buchner funnel, allowed to drain for 2 minutes, and then weighed to determine cooked weight.

b. Firmness Score (FR)

Two strands of cooked spaghetti were placed on a plexiglass plate and sheared at a 90° angle with a special plexiglass tooth. A continuous recording of distance versus force was made by the instrument during the operation. An automatic integrater was used to calculate the area under the curve (g cm) which was the amount of work required to

---

8/ Harris, R. H., and Sibbitt, L. D. Experimental durum milling and processing equipment with further quality studies on North Dakota durum wheats. Cereal Chem. 19: 388 (1942).

9/ Fifield, C. C. Experimental equipment for manufacture of alimentary pastes. Cereal Chem. 11: 330 (1934).

10/ Gilles, K. A., Sibbitt, L. D., and Shuey, W. C. Automatic laboratory dryer for macaroni products. Cereal Sci. Today 11: 322 (1966).

11/ Sheu, Ruey-yi, Medcalf, D. G., Gilles, K. A., and Sibbitt, L. D. Effect of biochemical constituents on macaroni quality. I. Differences between hard red spring and durum wheats. J. Sci. Fd. Agr. 18: 237 (1967).

shear the cooked spaghetti. To measure firmness, the average of three integrator scores was used, and the average work to shear was used as a measure of spaghetti firmness. The firmness score was read directly from the integrator value.

The higher the value, the firmer the spaghetti. A value of approximately 8.75 appears to be of preference.

Calculations were as follows:

$E = 0.0216 \times A$ (g cm)

A = Average integrator reading

E = Area of curve in g cm

c. Residue (RE) -

The solids remaining after the combined cooking and washing water was evaporated.

DISCUSSION

The following discussion represents some of the basic techniques and criteria used in the milling and cooking quality evaluation of durum wheat samples. Several testing factors are used to determine the overall quality characteristics or final evaluation of a particular sample including in general the kernel characteristics, milling performance, and cooking performance.

Each evaluation factor can be important. A sample could be of a sufficiently poor quality for a given factor to eliminate it from possible future testing. However, a sample submitted for the first time and found to show little promise should be tested again to establish if it has some or good promise, or no promise. A sample which is consistently rated as little promise or no promise should be discarded.

A computer program for evaluating the milling and cooking quality of the durum samples was developed[12/]. The program was used for evaluating all samples.

Eleven independent variables were selectively incorporated into weighted rating equations. These variables were test weight, kernel weight, percent large, medium and small kernels, semolina extraction, spaghetti and semolina color, visual color, spaghetti firmness and cooking residue. Each of the 11 variables was rated by arbitrary faulting limits compared with a percentage deviation from the standard(s) as major, minor, probable or no fault. For each of the 11 variables, absolute limits were established to give a final evaluation of 1 = "no promise"; 2 = "little promise"; 3 = "some promise"; and 4 = "good promise". Some of these ratings automatically translate into an evaluation of 1 because of the absolute limits established.

Because of the large number of durum samples received in recent years and the small size of some of the samples, it has become prohibitive to perform all the evaluation tests on each sample. Such limitations prompted the formulation of 12 separate weighting equations each representing a different combination of variables for the final evaluation of the sample. By utilizing these 12 equations, anywhere from 7 to 11 variables in various combinations can be evaluated.

All samples, as in previous years, are compared to a composite standard that represents a blend of the crop year blended to a known quality. However, the samples for the individual stations are evaluated against the average results of the check varieties from the respective stations.

12/ Dick, J. W., and Shuey, W. C. A computerized method for evaluating durum wheat quality. Cereal Chem. 53: 910 (1976).

The Final Evaluation (VAL) rating applies only to the data contained in the year of the report. The main defects and outstanding features are discussed. A selection which is promising as a new variety should be continued. A sample which shows little or no promise should be discontinued.

EXPERIMENTAL RESULTS - 1979 CROP

The results are tabulated and presented in the following order: Tables 1-7, Uniform Regional Nursery Samples; Tables 8 & 9, Western Regional Durum Nursery Samples; Table 10, Tulelake Durum Nursery Samples; Tables 11-18, Field Plot Nursery Samples; Tables 19-22, Advanced Nursery Samples; and Tables 23-27, Special Nursery Samples.

A study involving over 400 samples from two crop years has indicated that the semolina color score (DU) can reasonably predict the spaghetti color score within a half a point which is within the range of duplication. A correlation coefficient of 0.8 was found between the semolina color score and the spaghetti color score.

UNIFORM REGIONAL NURSERY SAMPLES

This year, samples were blended primarily by state. Samples were milled and processed using the micro procedure. An equal amount of semolina from each of the entries grown in the Uniform Durum Nursery was blended before processing into spaghetti. The wheat data were averaged. Samples were blended as follows: Minnesota, blend of Crookston and Morris stations; Montana and North Dakota, blend of Havre, Sidney, and Williston (Williston, ND was included in the Montana blend as it was the only station received from North Dakota and was considered in the same area as the Montana stations); South Dakota, blend of Selby and Watertown. The unblended uniform samples are those samples grown only at one location.

Minnesota Blend (Table 1). When compared with the standards of Crosby, Rugby, and Ward, all entries except two showed some to good promise. Mindum showed no promise due to low semolina dust and spaghetti color scores. D 75171 showed no promise primarily because of poor kernel characteristics and semolina extraction.

Montana and North Dakota Blend (Table 2). All but one entry showed some to good promise. The semolina dust and spaghetti color scores were very good. Mindum showed no promise because of low semolina dust and spaghetti color. Crosby, Rugby, and Ward were the standards.

South Dakota Blend (Table 3). Two entries showed no promise; Cando because of low percentage of large kernels and WSMP 130 because of poor kernel characteristics, low semolina extraction, and poor semolina dust and spaghetti color. All other entries showed some to good promise when compared with the standards of Crosby, Rugby, and Ward.

UNBLENDED REGIONAL NURSERY SAMPLES

Samples were milled using the micro procedure. Only the semolina color score was determined on these samples.

Stephen, Minnesota (Table 4). When compared with the standards of Crosby, Rugby, and Ward, all varieties showed some or good promise except Botno, Mindum, and Rolette which showed little promise due to low semolina dust color.

Havre and Sidney, Montana (Tables 5 and 6). When compared with the standards of Crosby, Rugby and Ward, the variety Wells from both stations showed no promise because of low 1000 kernel weight and low semolina dust color.

Williston, North Dakota (Table 7). All entries showed some or good promise when compared with the standards of Crosby, Rugby, and Ward.

WESTERN DURUM NURSERY

Tulelake, California (Table 8). Several entries showed some to good promise. Those entries labeled no promise showed mainly low semolina dust color and low percentage of large kernels. Cando, Modoc, and the 1979 standard blend were used as the standards.

Royal Slope, Washington (Table 9). Wandell, CA 307, WA 6518, and WA 6621 showed no promise due to low semolina dust color. WA 6632 and WA 6633 showed no promise because of low percentage of large kernels. They did, however, have good semolina dust color. Wampum, a bread wheat, also showed no promise. Several samples showed some or good promise when compared with Cando, Modoc, and the 1979 standard blend.

TULELAKE DURUM NURSERY

Tulelake, California (Table 10). When compared with the standards of Cando, Modoc and 1979 standard blend, Leeds, TL 79-1077, TL 79-1080, and TL 79-1082 showed some or good promise.

FIELD PLOT NURSERY SAMPLES

Samples were milled and the semolina was processed into spaghetti using the macro method.

Mesa, Arizona (Table 11). When compared with the 1979 standard blend, Jo "S", Mexi "S", G 5003, and UC 304 all showed some promise. The other entries showed no promise mainly because of low semolina dust and spaghetti color.

Davis, California (Table 12). All entries showed some or good promise. The semolina dust and spaghetti color scores were very good. Modoc and the 1979 standard blend were used as standards.

Imperial Valley, California (Table 13). Several entries showed some promise when compared with the standards of Mexicali 75, Modoc, and the 1979 standard blend. Jori 69, Produra, and 1000 D showed no promise due to low semolina dust and spaghetti color. D 1107, TL 395, TL 408, TL 409, UC 307 and UC 328 showed no promise primarily because of high speck count and lower percentage of large kernels. They did, however, have good semolina dust and spaghetti color.

Kings County, California (Table 14). Entries 313, 320, 416, and 421 showed some promise when compared with the standards of Mexicali 75, Modoc, and 1979 standard blend. Other entries showed no promise because of poor kernel characteristics.

Tulelake, California (Table 15). Produra and 323 showed no promise when compared with the standards due to low semolina dust and spaghetti color.

Tulelake, California (Table 16). Several entries showed some to good promise when compared with the standards of Mexicali 75, Modoc, and 1979 standard blend. Several entries showed no promise due mainly to the low semolina dust and spaghetti color scores.

Tulelake, California (Table 17). When compared with Modoc and the 1979 standard blend, several samples showed some to good promise. Seven entries showed no promise due to low semolina dust and spaghetti color.

Williston, North Dakota (Table 18). All entries showed some to good promise. Semolina dust and spaghetti color scores were very good. Crosby, Rugby, and Ward were used as the standards.

ADVANCED NURSERY SAMPLES

Samples were milled using the micro procedure. Color was determined on the semolina.

Tulelake, California (Table 19).

All but one entry showed no promise due to low semolina dust color. The 1979 standard blend was used as the standard.

Tulelake, California (Table 20). When compared with the 1979 standard blend, all entries showed no promise due to low semolina dust color.

Tulelake, California (Table 21). 79-257, 79-261, and 79-270 showed some promise when compared with the standards of Modoc and 1979 standard. All other entries showed no promise due mainly to low semolina dust color.

Royal Slope, Washington (Table 22). All but T 7700 192012 showed no promise when compared with the 1979 standard blend.

SPECIAL NURSERY SAMPLES

The Arizona samples were milled and processed using the macro procedure. The Klamath Falls, OR and Royal Slope, WA samples were milled using the micro procedure. Color was determined on the semolina.

Church Farm - Arizona (Table 23). When compared with the 1979 standard blend, all samples showed no promise due to low semolina dust and spaghetti color.

Cumming and Sons - Arizona (Table 24). Compared with the 1979 standard blend, all entries showed no promise. However, Aldura did have semolina dust and spaghetti color scores equal to the standard, but was faulted for the high speck count and lower firmness score. Mexicali also had a high speck count. Both Mexicali and 1000 D had low semolina dust color with a minimum spaghetti color.

Tom Hall - Arizona (Table 25). Due to low semolina dust and spaghetti color scores, all entries showed no promise when compared with the 1979 standard blend.

Klamath Falls, Oregon (Table 26). When compared with the standards of Modoc and 1979 standard blend, CD 1895, CM 9799, CM 10143, and CM 17142 showed no promise due mainly to low semolina dust color.

Royal Slope, Washington (Table 27). All entries showed no promise due mainly to low semolina dust color. The 1979 standard blend was used as the standard.

TABLE 1

QUALITY DATA FOR UNIFORM REGIONAL DURUM NURSERY BLENDS[A/] 1979 CROP

STATE=MINNESOTA STATION=CROOKSTON-MORRIS NURSERY=BLEND

VARIETY	TW[1/]	KW	LG	MD	SM	PR	SEEX	SP	DU	VI	FR	RE	VAL[2/]	Deficiencies[3/] TW	KW	LG	SM	PR	MG	SP	DU	VI	FR	RE	SD[4/]
	#/Bu	g	%	%	%	%	%					%													
CROSBY	58.5	37.4	29	67	4	13.5	61.5		120	9.0	7.65	5.6	4		MN	PB			PB		PB			PB	YS
RUGBY	59.8	41.8	39	51	10	13.6	64.0		125	9.5	7.67	9.9	4				MN							MN	YS
WARD	59.8	43.5	42	56	2	13.0	64.0		125	9.5	7.02	2.9	4										PB		YS
BOTNO	59.5	39.1	37	60	3	12.9	64.5		120	9.5	7.15	2.4	4		PB						PB		PB		
CALVIN	56.5	61.2	20	72	8	13.7	58.0		120	9.0	6.50	4.6	3	MN		MJ	PB		MJ		PB		PB		
CANDC	58.8	36.3	29	65	6	13.4	62.5		125	9.0	6.59	5.6	4		MN	PB							PB	PB	
COULTER	56.5	35.9	25	70	5	14.0	63.0		120	9.0	7.37	4.4	3	MN	MN	MN					PB		PB		
EDMORE	58.0	42.4	29	67	4	14.0	61.0		120	9.0	9.03	8.0	4			PB			PB		PB			MN	
MINDUM	60.3	39.5	39	58	3	13.0	64.5		110	8.5	6.13	8.7	1		PB						MJ	PB	PB	MN	
ROLETTE	60.5	69.5	31	67	2	12.9	66.0		115	9.0	6.22	8.9	3			PB					MN		PB	MN	
VIC	58.8	43.8	43	55	2	13.4	63.5		125	9.5	8.75	6.9	4											MN	
D 763	59.0	42.6	37	61	2	14.3	61.0		130	8.0	7.34	3.7	3						PB			MN	PB		
D 7224	56.3	41.1	28	67	5	12.6	57.0		120	9.0	6.11	4.3	3	MN		MN			MJ		PB		PB		
D 7483	57.8	42.8	58	40	2	13.1	59.5		125	9.0	7.86	5.0	4	PB					MN						
D 75140	57.8	41.5	39	57	4	13.4	59.5		140	10.0	6.61	5.2	3	PB					MN				PB	PB	
D 75171	56.8	35.8	13	80	7	14.4	58.5		130	10.0	7.86	4.6	1	MN	MN	MJ	PB		MJ						
D 75184	56.8	37.7	30	67	3	14.0	60.0		135	9.5	8.21	5.3	3	MN	MN	PB			MN					PB	
D 75209	57.8	35.2	20	76	4	13.1	59.0		120	9.0	7.78	4.8	3	PB	MN	MJ			MJ		PB				
DT 427	57.5	40.6	42	55	3	13.0	60.5		135	10.0	6.83	6.3	3	PB					MN				PB	MN	

1/ TW = Test weight; KW = 1000-Kernel weight; LG = Large kernels; MD = Medium kernels, SM = Small kernels; PR = Wheat protein (14% m.b.); SEEX = Semolina extraction; SP = Number of specks in semolina per 64.5 sq cm; DU = Semolina color; VI = Spaghetti color; FR = Cooked spaghetti firmness in g cm; RE = Cooked spaghetti residue; MG = Milling deficiency based on percent semolina extraction.

2/ VAL = Final evaluation; 1 = No promise; 2 = Little promise; 3 = Some promise; 4 = Good promise.

3/ PB = Probable; MN = Minor; MJ = Major.

4/ SD = Standard; YS indicates standard.

TABLE 2

QUALITY DATA FOR UNIFORM REGIONAL DURUM NURSERY BLENDS A/   1979 CROP

------------------------- STATE=MONTANA-NORTH_DAKOTA STATION=HAVRE_SIDNEY_WILLISTON NURSERY=BLEND -------------------------

VARIETY	_TW_	_KW_	LG	MD	SM	_PE_	SFEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
CROSBY	61.0	33.3	11	85	4	15.6	64.0		135	9.5	6.50	2.5	4								PB		PB		YS
RUGBY	61.2	33.8	13	83	4	15.9	64.0		140	9.5	5.79	4.3	4										PB		YS
WARD	61.0	34.8	17	79	4	15.5	65.0		140	9.5	5.66	4.0	4										PB		YS
BOTNO	61.8	34.1	10	86	4	15.5	68.3		135	9.0	6.16	4.3	3								PB	PB	PB		
CALVIN	61.3	32.1	7	85	8	15.4	66.0		145	9.0	4.36	3.8	3		PB	PB	PB					PB	PB		
CANDO	61.3	31.0	6	87	7	15.1	64.5		140	9.0	3.87	4.3	3		MN	FB	FB					PB	PB		
COULTER	61.0	32.5	12	83	5	15.6	66.5		140	9.5	5.40	2.0	4		PB								PB		
EDMORE	61.5	38.3	14	82	4	15.6	65.0		150	9.5	6.35	3.2	4										PB		
MINDUM	61.5	34.5	23	74	3	16.4	65.0		115	8.0	6.48	3.8	1								MJ	MJ	PB		
ROLETTE	62.7	37.5	21	78	1	16.2	62.0		125	9.0	6.98	4.3	3						PB		PB	FB	PB		
VIC	62.0	37.5	20	77	3	15.3	66.0		145	9.5	6.44	4.3	4										PB		
D 763	61.3	36.4	12	84	4	16.9	63.0		150	9.5	5.88	5.9	4										PB	PB	
D 7224	61.3	34.6	13	81	6	14.6	63.0		145	9.5	6.50	4.5	4				PB						PB		
D 7483	61.0	35.7	26	73	1	15.4	63.0		145	9.5	5.25	7.4	4										PB	MN	
D 75140	59.7	33.2	12	85	3	15.8	63.0		155	9.5	5.66	6.6	4										PB	MN	
D 75171	61.5	32.5	6	91	3	16.1	64.0		150	9.5	7.86	8.3	4		PB	PB								MN	
D 75184	60.7	36.0	26	72	2	16.1	64.0		145	9.5	6.26	2.4	4										PB		
D 75209	61.3	30.6	8	89	3	15.9	64.0		140	9.5	6.87	5.7	4		MN	PB							PB	PB	
DT 427	61.2	35.3	16	81	3	16.0	63.0		150	9.5	6.44	5.5	4										PB	PB	

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 3 QUALITY DATA FOR UNIFORM REGIONAL DURUM NURSERY BLENDS[A/] 1979 CROP

STATE=SOUTH_DAKOTA STATION=SELBY_WATERTON NURSERY=BLEND

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEFX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
CROSBY	60.0	35.2	26	71	3	13.2	64.5		130	9.0	5.40	4.7	4		PB	PB							PB		YS
RUGBY	61.0	37.9	36	62	2	13.0	64.5		130	9.5	5.96	4.7	4										PB		YS
WARD	60.5	38.4	30	69	1	12.9	65.5		130	9.0	5.53	5.6	4										PB	PB	YS
ROTNO	61.0	39.3	31	68	1	13.1	68.0		125	9.0	6.72	4.7	4								PB		PB		
CALVIN	60.8	35.7	29	69	2	13.0	66.0		130	9.0	6.63	7.2	4		PB								PB	MN	
CANDO	59.5	32.6	10	87	3	12.9	64.5		135	9.0	6.50	5.1	1		MN	MJ							PB		
COULTER	60.0	39.3	23	76	1	13.3	66.5		130	9.0	5.75	5.9	4			PB							PB	PB	
EDMORE	60.0	41.0	37	62	1	13.4	63.5		140	9.5	9.96	6.0	4											PB	
MINDUM	60.8	37.2	36	62	2	12.9	63.5		120	8.5	5.44	6.5	3								MJ	PB	PB	MN	
ROLETTE	61.8	39.0	35	64	1	13.7	67.0		120	9.0	6.37	5.2	3								MJ		PB	PB	
VIC	62.0	41.3	45	54	1	13.0	65.0		135	9.0	7.06	5.8	4										PB	PB	
D 763	60.5	38.7	31	68	1	14.4	62.5		135	9.5	7.52	7.4	4						PB					MN	
D 7224	59.3	37.3	27	71	2	12.5	64.0		130	8.5	6.80	6.5	3									PB	PB	MN	
D 7483	59.3	39.2	44	55	1	13.5	63.5		135	9.0	10.41	5.9	4										PB	PB	
D 75140	58.5	36.9	38	61	1	13.2	63.5		135	9.5	6.65	7.9	4	PB									PB	MN	
D 75171	61.0	35.7	23	76	1	13.4	65.5		135	9.5	6.80	2.1	4		PB	PB							PB		
D 75184	60.5	39.3	50	49	1	14.6	64.0		125	9.0	8.25	4.0	4								PB				
D 75209	59.8	33.6	21	77	2	13.9	63.5		120	9.0	8.70	1.5	3		MN	MN					MJ				
DT 427	60.5	40.0	47	52	1	13.3	64.5		140	9.5	8.10	3.0	4												
WSMP 130	55.5	32.4	20	77	3	14.7	59.0		100	7.5	9.33	8.0	1	MJ	MN	MN			MJ		MJ	MJ		MN	

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 4 QUALITY DATA FOR UNBLENDED UNIFORM REGIONAL NURSERY SAMPLES A/ 1979 CROP

STATE=MINNESOTA STATION=STEPHEN NURSERY=UNIFORM

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
CROSBY	61.0	35.0	33	63	4	13.3	61		110				3		PB						PB				YS
RUGBY	60.0	36.9	28	68	4	13.3	59		120				4			PB									YS
WARD	60.5	39.5	44	53	3	13.6	58		115				4												YS
BOTNO	60.0	40.0	41	56	3	13.8	59		105				2								MJ				
CALVIN	59.0	38.2	20	73	7	13.2	58		115				3	PB		MJ	FB								
CANDO	59.0	31.2	15	78	7	12.4	60		115				3	PB	MJ	MJ	PB								
COULTER	59.5	36.8	44	52	4	13.3	61		110				3								PB				
EDMORE	58.5	41.8	55	44	1	14.3	60		120				4	PB											
MINDUM	59.5	37.6	34	62	4	14.0	58		105				2								MJ				
ROLETTE	60.0	34.6	43	54	3	14.1	58		105				2		PB						MJ				
VIC	59.5	39.2	34	64	2	13.8	58		120				4												

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 5 QUALITY DATA FOR UNBLENDED UNIFORM REGIONAL NURSERY SAMPLES A/ 1979 CROP

STATE=MONTANA STATION=HAVRE NURSERY=UNIFORM

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
CROSBY	61.0	33.3	11	85	4	15.6	64		125				2								MJ				YS
RUGBY	61.2	33.8	13	83	4	15.9	64		140				4												YS
WARD	61.0	34.8	17	79	4	15.5	65		140				4												YS
WELLS	62.5	26.7	4	87	9	14.0	61		120				1		MJ	MN	MN		MN		MJ				

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 6 QUALITY DATA FOR UNBLENDED UNIFORM REGIONAL NURSERY SAMPLES[A/] 1979 CROP

STATE=MONTANA STATION=SIDNEY NURSERY=UNIFORM

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
CROSBY	61.0	33.3	11	85	4	15.6	64		125				2								MJ				YS
RUGBY	61.2	33.8	13	83	4	15.9	64		140				4												YS
WARD	61.0	34.8	17	79	4	15.5	65		140				4												YS
WELLS	60.5	32.1	10	85	5	15.0	62		115				1		PB				PB		MJ				

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 7

QUALITY DATA FOR UNBLENDED UNIFORM REGIONAL NURSERY SAMPLES A/ 1979 CROP

-------------------------------- STATE=NORTH_DAKOTA STATION=WILLISTON NURSERY=UNIFORM --

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
CROSBY	61.0	33.3	11	85	4	15.6	64		125				2								MJ				YS
RUGBY	61.2	33.8	13	83	4	15.9	64		140				4												YS
WARD	61.0	34.8	17	79	4	15.5	65		140				4												YS
D771	60.5	30.0	7	82	11	15.3	63		130				3		MN	PB	MN				PB				
D772	59.0	35.8	16	77	7	14.7	63		135				4	PB			PB								
D773	60.0	30.9	8	83	9	15.4	65		135				4		MN	PB	MN								
D774	59.5	31.6	6	83	11	15.4	65		130				3	PB	PB	PB	MN				PB				
D775	58.0	30.0	8	82	10	14.8	65		140				4	MN	MN	PB	MN								

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 8 QUALITY DATA OF WESTERN REGIONAL DURUM NURSERY SAMPLES A/ 1979 CROP

STATE=CALIFORNIA STATION=TULELAKE NURSERY=UNIFORM

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.9		135				1		PB	MN			MJ						YS
CANDO	62.5	44.4	57	41	2	11.3	68.0		110				3								MN				YS
MODOC	63.0	46.9	74	26	0	12.9	65.0		105				1								MJ				YS
SHASTA BREAD WHEAT	62.5	40.0	66	33	1	12.5	73.0		60				1		MN						MJ				
WANDELL	62.0	31.9	10	83	7	10.9	63.0		100				1		MJ	MJ	MN				MJ				
CA 000304	64.0	46.7	74	26	0	13.0	68.0		115				4												
CA 000307	63.0	50.8	79	21	0	12.1	67.0		105				1								MJ				
CA 000310	62.5	43.7	55	44	1	12.6	64.0		115				4			PB									
CA 000313	63.5	45.2	67	33	0	11.6	65.0		110				3								MN				
CA 000319	64.0	46.3	67	33	0	11.5	65.0		105				1								MJ				
TL-75393	63.0	49.0	82	17	1	12.1	65.0		110				3								MN				
TL-75409	61.0	42.4	52	47	1	11.8	62.0		110				3	PB	PB	MN					MN				
WA 6518	62.0	48.5	76	23	1	12.3	64.0		110				3								MN				
WA 6520	63.0	45.7	66	33	1	13.5	67.0		115				4												
WA 6521	63.5	42.2	25	74	1	14.3	67.0		110				1		PB	MJ					MN				
WA 6523	62.0	49.8	80	19	1	11.4	63.0		110				3								MN				
WA 6524	63.0	46.3	70	29	1	11.8	66.0		110				3								MN				
WA 6525	62.0	49.8	75	24	1	11.8	62.0		110				3								MN				
WA 6621	63.0	45.5	70	30	0	11.4	65.0		95				1								MJ				
WA 6622	63.5	50.3	74	26	0	12.3	66.0		110				3								MN				
WA 6623	62.5	52.1	80	19	1	11.8	67.0		115				4												
WA 6624	63.0	54.3	87	13	0	12.3	67.0		110				3								MN				
WA 6625	63.0	47.4	68	31	1	11.3	71.0		105				1								MJ				
WA 6626	63.0	47.1	78	22	0	12.1	63.0		105				1								MJ				
WA 6627	62.5	48.5	74	25	1	12.1	65.0		105				1								MJ				
WA 6628	62.0	52.1	80	19	1	12.6	68.0		110				3								MN				
WA 6629	62.0	55.6	83	16	1	12.7	68.0		100				1								MJ				
WA 6630	61.5	49.0	53	46	1	12.2	68.0		105				1			PB					MJ				
WA 6631	62.0	50.8	51	48	1	11.6	66.0		110				3			MN					MN				
WA 6632	61.0	42.9	24	75	1	11.1	67.0		120				1	PB	PB	MJ									
WA 6633	60.5	46.3	68	31	1	11.4	67.0		115				4	PB											
WA 6634	61.0	49.3	64	35	1	10.3	64.0		110				3	PB							MN				
WA 6635	63.0	51.8	78	21	1	11.3	65.0		100				1								MJ				
WA 6636	61.5	46.7	46	51	3	12.7	64.0		100				1			MJ	PB				MJ				
WA 6637	61.5	25.3	82	17	1	13.7	67.5		115				1		MJ										
WA 006284	62.0	50.0	77	22	1	12.5	64.0		110				3								MN				
WA 006292	63.0	45.0	58	41	1	11.6	61.0		110				3						PB		MN				

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 9 QUALITY DATA OF WESTERN REGIONAL DURUM NURSERY SAMPLES A/ 1979 CROP

---------- STATE=WASHINGTON STATION=ROYAL_SLOPE NURSERY=UNIFORM ----------

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.9		135				3			PB			MN						YS
CANDO	64.0	41.3	52	46	2	11.3	63.0		115				3		PB						PB				YS
NODOC	63.5	46.7	66	34	0	12.1	58.0		110				2								MJ				YS
WAMPUM BREAD WHEAT	63.0	38.0	49	50	1	12.5	62.0		55				1		MN	PB					MJ				
WANDELL	63.5	31.7	14	79	7	10.5	60.0		105				1		MJ	MJ	MN				MJ				
CA 000304	64.5	43.7	63	37	0	11.2	61.0		115				3								PB				
CA 000307	64.0	43.7	68	30	2	11.2	62.0		100				1								MJ				
CA 000310	63.0	43.3	56	42	2	11.7	59.0		115				3								PB				
CA 000313	63.0	45.5	70	30	0	11.5	56.0		125				3						MN						
CA 000319	64.0	41.3	44	55	1	11.8	59.0		110				2		PB	MN					MJ				
TL 75393	64.5	45.7	78	21	1	12.1	57.0		115				3						PB		PB				
TL 75409	63.5	42.9	48	50	2	11.3	54.0		115				3			PB			MJ		PB				
WA 006284	64.0	42.0	60	39	1	12.1	59.0		115				3		PB						PB				
WA 006292	62.5	42.6	42	56	2	11.3	57.0		115				3			MN			PB		PB				
WA 006518	62.0	43.1	58	42	0	12.0	58.0		105				1	PB							MJ				
WA 006520	64.0	39.8	36	63	1	13.0	60.0		120				3		MN	MJ									
WA 006521	64.0	42.2	70	30	0	13.0	57.0		115				3		PB				PB		PB				
WA 006523	64.4	47.4	78	22	0	12.3	56.0		120				3						MN						
WA 006524	64.5	46.1	73	27	0	12.4	55.0		115				3						MN		PB				
WA 006525	63.0	46.7	68	31	1	12.4	57.0		115				3						PB		PB				
WA 006621	64.0	43.3	61	39	0	11.3	58.0		100				1								MJ				
WA 006622	64.0	45.0	57	43	0	11.8	60.0		115				3								PB				
WA 006626	62.5	43.7	54	46	0	12.7	56.0		110				2						MN		MJ				
WA 006627	63.5	45.8	71	29	0	12.6	58.0		115				3								PB				
WA 006629	62.5	46.5	69	30	1	12.5	61.0		110				2								MJ				
WA 006630	61.5	47.4	47	52	1	11.7	63.0		115				3	PB		MN					PB				
WA 006631	60.5	47.8	49	50	1	12.1	62.0		120				4	MN		PB									
WA 006632	62.0	45.0	31	68	1	11.2	62.0		125				1	PB		MJ									
WA 006633	60.5	44.1	30	68	2	11.7	61.0		130				1	MN		MJ									
WA 006634	60.0	44.2	57	42	1	11.8	57.0		120				3	MJ					PB						
WA 006636	61.5	48.0	63	36	1	12.3	63.0		125				4	PB											
WA 006637	62.5	50.0	70	30	0	13.1	62.0		125				4												

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 10

QUALITY DATA OF TULELAKE DURUM NURSERY SAMPLES A/ 1979 CROP

STATE=CALIFORNIA STATION=TULELAKE NURSERY=DURUM

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.9		135				3		PB	PB			MJ						YS
CANDO	62.0	46.7	52	46	2	11.2	63.0		115				3			PB					PB				YS
MODOC	64.5	46.5	72	27	1	13.0	60.0		105				1								MJ				YS
LEEDS	63.5	42.4	52	47	1	13.7	64.0		110				3		PB	PB					MN				
SENTRY	63.5	42.6	40	59	1	13.3	62.0		100				1		PB	MJ					MJ				
SHASTA BREAD WHEAT	64.0	42.2	66	33	1	13.0	72.0		55				1		PB						MJ				
WANDELL	61.5	35.6	8	87	5	11.1	63.0		100				1	PB	MJ	MJ	PB				MJ				
TL 79-1074	63.0	51.8	77	22	1	10.9	64.0		85				1								MJ				
TL 79-1075	64.5	54.3	81	18	1	11.3	58.0		90				1								MJ				
TL 79-1076	62.5	53.8	86	14	0	11.4	65.0		100				1								MJ				
TL 79-1077	64.0	58.1	86	13	1	11.3	62.0		110				3								MN				
TL 79-1078	62.0	50.5	81	18	1	11.6	59.0		85				1								MJ				
TL 79-1079	61.5	41.3	26	72	2	13.0	59.0		110				1	PB	MN	MJ					MN				
TL 79-1080	61.0	43.1	45	54	1	12.0	60.0		120				4	PB	PB	MN									
TL 79-1081	63.0	49.3	70	30	0	11.6	63.0		95				1								MJ				
TL 79-1082	63.0	44.6	45	54	1	12.3	63.0		115				3			MN					PB				
TL 79-1083	63.0	46.5	46	53	1	12.6	65.0		105				1			MN					MJ				
TL 79-1085	62.5	48.1	70	29	1	12.4	62.0		105				1								MJ				

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 11

QUALITY DATA OF DURUM FIELD PLOT SAMPLES A/ 1979 CROP

STATE=ARIZONA STATION=MESA NURSERY=FIELD-PLOT

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	57.0	27	135	9.5	8.14	3.0	4												YS
ALDURA	63.4	54.6	86	14	0	13.1	58.5	30	135	7.5	7.52	4.1	1									MJ			
BITTERN "S" 3Y	65.2	62.1	88	11	1	13.2	58.2	37	95	7.5	7.80	5.4	1							MN	MJ	MJ		PB	
BITTERN "S" 4Y	65.0	65.4	95	4	1	12.9	59.0	27	100	7.5	7.58	7.5	1								MJ	MJ		MN	
BITTERN "S" 5Y	65.3	64.1	93	6	1	12.7	58.9	23	105	7.5	7.65	9.5	1								MJ	MJ		MN	
CORMORANT "S"	63.9	56.5	92	8	0	13.3	57.0	27	90	7.0	6.85	5.2	1								MJ	MJ	MN	PB	
JO "S"/61-130 X LDS	63.0	49.3	79	21	0	14.0	56.5	27	130	9.0	7.28	6.1	3								PB	PB	PB	PB	
JORI 69	63.9	66.7	94	6	0	14.3	57.3	27	95	7.5	6.91	5.1	1								MJ	MJ	MN		
MEXI "S"-FG "S"	63.0	59.2	92	8	0	12.6	60.2	33	125	9.0	8.77	6.8	3							MN	MJ	PB		MN	
MEXICALI 75	62.0	64.1	93	7	0	13.3	63.0	30	115	9.0	8.81	6.0	1								MJ	PB		PB	
MEXICALI 75	62.2	62.5	93	7	0	12.4	57.6	30	115	9.0	8.21	4.6	1								MJ	PB			
CFN-FG"S"XPH"S"	62.3	66.2	80	19	1	12.2	61.7	23	90	7.5	5.44	8.4	1								MJ	MJ	MJ	MN	
CIT "S"-MCA	64.6	64.9	94	6	0	12.8	58.0	30	110	8.0	7.28	5.1	1								MJ	MJ	PB		
CR "S"-USA 02299	63.4	62.1	96	4	0	13.1	57.7	20	100	7.5	7.60	5.4	1								MJ	MJ		PB	
G 5002	63.2	64.5	94	6	0	13.6	59.8	27	85	6.0	6.00	6.2	1								MJ	MJ	MJ	PB	
G 5003	63.5	61.7	94	6	0	11.5	60.2	27	130	9.5	6.52	5.0	3								PB		MN		
P 66/253	62.1	52.9	88	10	2	14.2	57.6	33	100	8.5	8.68	4.6	1							MN	MJ	MN			
PLS"S"-RUFF"S"	63.4	52.6	86	14	0	13.5	57.6	17	115	9.0	6.89	4.6	1								MJ	PB	MN		
UC 304	65.0	41.3	67	30	3	12.8	58.8	30	135	9.5	5.68	3.8	3		PB								MJ		
WPB 1000D (EXP 1)	61.3	51.5	82	18	0	13.6	58.4	20	105	9.0	7.95	3.3	1	PB							MJ	PB			
WPB 1000D (EXP 7)	61.2	45.7	84	16	0	14.1	57.0	17	105	8.5	9.05	6.7	1	PB							MJ	MN		MN	

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 12 QUALITY DATA OF DURUM FIELD PLOT SAMPLES A/ 1979 CROP

STATE=CALIFORNIA STATION=DAVIS NURSERY=FIELD-PLOT

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.1	20	130	9.0	7.28	3.7	3		PB	MJ							PB		YS
MODOC	64.9	49.0	79	20	1	11.8	53.5	13	125	9.0	8.36	2.0	4												YS
304	64.1	43.7	58	40	2	12.2	55.6	10	150	10.0	6.46	5.1	3		PB	PB							MJ		
307	64.0	46.7	75	23	2	11.1	54.0	17	120	9.0	7.04	1.1	4								MN		PB		
310	63.7	44.1	66	33	1	11.0	54.0	14	140	10.0	6.76	8.0	3		PB								MN	MN	
313	63.5	46.3	64	35	1	10.5	54.4	10	140	10.0	6.46	5.0	3										MJ		
319	63.2	42.4	45	52	3	11.0	55.6	13	130	9.5	6.87	2.4	3		PB	MJ	PB						MN		
320	63.2	43.1	52	47	1	11.0	54.0	17	135	10.0	7.43	4.0	4		PB	MN							PB		
388	62.5	43.1	55	43	2	11.5	55.4	10	150	10.0	6.67	2.9	3	PB	PB	MN							MN		
416	64.4	46.7	77	22	1	11.8	52.7	10	140	10.0	7.71	2.7	4												
418	62.4	40.7	47	51	2	11.1	56.7	20	140	10.0	6.11	4.0	3	PB	MN	MJ							MJ		
420	64.1	42.2	60	38	2	12.2	57.6	13	140	10.0	7.04	2.3	4		MN	PB							PB		
421	62.2	43.1	62	36	2	11.9	56.2	10	145	10.0	7.58	1.5	4	PB	PB										

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 13

QUALITY DATA OF DURUM FIELD PLOT SAMPLES A/ 1979 CROP

STATE=CALIFORNIA STATION=IMPERIAL-VALLEY NURSERY=FIELD-PLOT

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.8	27	135	9.0	6.67	4.1	3		PB	MN							MN		YS
MEXICALI 75	63.2	49.8	76	22	2	12.6	58.6	20	125	9.0	6.74	5.7	3								PB		MN	PB	YS
MODOC	65.7	42.6	60	38	2	12.8	54.9	30	130	9.5	6.70	5.4	3		PB								MN	PB	YS
JORI 69	64.3	62.1	90	8	2	14.1	55.1	27	100	8.0	6.20	4.0	1								MJ	MN	MJ		
PRODURA	64.4	45.8	64	34	2	13.7	55.1	33	95	7.5	6.50	5.3	1							MN	MJ	MJ	MN	PB	
1000 D	62.1	47.4	75	23	2	13.8	58.3	40	105	8.5	7.84	5.8	1	PB						MN	MJ	PB		PB	
D 1107	64.1	45.7	64	35	1	13.3	59.3	43	135	9.5	6.18	7.0	1							MJ			MJ	MN	
TL 393	65.6	49.8	84	15	1	13.9	51.5	30	135	9.5	6.85	5.3	3						MJ				MN	PB	
TL 394	64.8	41.7	46	52	2	12.8	56.2	30	135	9.5	6.03	5.0	3		PB	MJ							MJ		
TL 395	62.5	38.9	34	64	2	13.2	58.2	43	130	9.5	6.76	6.7	1	PB	MN	MJ				MJ			MN	MN	
TL 396	63.1	47.1	64	34	2	13.5	57.1	30	135	9.5	6.85	4.9	3										MN		
TL 397	64.8	42.7	47	51	2	13.3	57.4	30	135	9.5	6.46	5.8	3		PB	MJ							MJ	PB	
TL 408	64.0	45.0	71	27	2	13.8	56.7	47	135	9.5	6.72	4.5	1							MJ			MN		
TL 409	62.8	39.8	38	59	3	13.6	57.6	37	135	9.5	6.74	6.0	1		MN	MJ				MN			MN	PB	
UC 307	64.6	42.7	54	45	1	12.1	57.6	43	120	9.0	6.16	5.2	1		PB	PB				MJ	MJ		MJ	PB	
UC 310	64.8	44.6	52	46	2	13.7	57.0	37	135	9.5	6.74	3.9	3			MN				MN			MN		
UC 313	63.8	42.0	58	40	2	13.0	56.2	30	135	9.5	5.85	4.9	3		PB								MJ		
UC 319	64.5	40.8	44	55	1	12.2	57.8	33	120	9.5	5.23	4.9	3		MN	MJ				MN	MJ		MJ		
UC 328	64.9	43.3	52	46	2	12.9	57.0	50	120	9.0	5.40	5.2	1		PB	MN				MJ	MJ		MJ	PB	
UC 388	63.8	44.4	56	42	2	13.0	57.4	30	130	9.5	5.88	5.3	3			PB							MJ	PB	

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 14

QUALITY DATA OF DURUM FIELD PLOT SAMPLES A/ 1979 CROP

STATE=CALIFORNIA STATION=KINGS_COUNTY NURSERY=FIELD-PLOT

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	55.1	20	135	9.5	7.34	5.0	3		MN	MJ							PB		YS
MEXICALI 75	63.4	51.0	80	19	1	12.2	56.5	13	120	9.0	8.14	3.0	4								MN				YS
MODOC	65.9	47.8	79	20	1	13.3	53.3	17	125	9.5	7.34	3.0	4						PB				PB		YS
304	64.2	41.8	47	51	2	11.7	55.4	23	140	9.5	4.92	2.8	1		MN	MJ							MJ		
307	64.0	45.0	66	33	1	12.3	53.8	7	115	9.0	6.22	8.0	1		PB						MJ		MJ	MN	
310	63.1	43.5	48	50	2	13.0	53.7	20	140	9.5	5.38	1.5	1		MN	MJ							MJ		
313	62.8	43.1	60	39	1	12.2	55.5	33	130	9.5	5.90	3.0	3		MN	MN				MN			MJ		
319	62.9	40.3	41	57	2	12.0	56.0	13	130	9.5	6.22	2.2	1		MN	MJ							MJ		
320	62.5	44.2	52	46	2	13.0	55.0	10	130	9.5	6.74	3.0	3	PB	PB	MJ							MN		
388	62.1	40.5	44	54	2	12.8	56.0	10	145	10.0	4.88	4.6	1	PB	MN	MJ							MJ		
416	63.8	47.1	74	24	2	12.9	54.6	13	140	9.5	5.44	3.6	3										MJ		
418	61.2	39.1	39	59	2	12.4	57.2	20	140	10.0	6.26	4.3	1	MN	MJ	MJ							MJ		
420	63.5	40.3	42	55	3	12.6	56.6	17	140	10.0	5.10	3.8	1		MN	MJ	PB						MJ		
421	63.4	45.0	71	28	1	12.3	55.5	20	140	10.0	5.72	5.2	3		PB								MJ	PB	

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 15

QUALITY DATA OF DURUM FIELD PLOT SAMPLES A/ 1979 CROP

STATE=CALIFORNIA STATION=TULELAKE NURSERY=FIELD-PLOT

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.8	27	135	9.0	6.67	4.1	1		MN	MJ							PB		YS
MEXICALI 75	61.8	58.5	90	9	1	11.7	54.9	17	115	8.5	7.43	4.5	3								MN	PB	PB		YS
MODOC	63.7	50.3	85	14	1	13.3	52.3	10	120	9.5	7.39	4.2	3						PB		PB		PB		YS
PRODURA	64.8	49.8	84	15	1	12.2	55.0	20	95	8.0	5.36	5.5	1								MJ	MN	PB	PB	
304	64.4	50.5	85	15	0	13.1	55.0	20	130	9.5	6.39	4.8	4										PB		
307	63.7	55.6	88	12	0	12.4	54.0	13	115	8.5	7.19	2.1	3								MN	PB	PB		
310	62.6	51.8	79	21	0	12.7	55.5	27	130	9.5	6.00	1.4	4										PB		
313	62.8	49.0	79	20	1	11.5	54.7	17	125	9.5	5.05	2.5	4		PB								PB		
319	63.8	49.8	82	18	0	11.1	56.2	20	120	9.0	5.31	2.5	4								PB		PB		
320	62.8	46.9	71	28	1	12.2	52.9	23	130	9.5	4.73	3.5	4		PB								PB		
323	64.0	52.1	86	14	0	12.3	55.4	17	110	9.0	5.40	3.0	1								MJ		PB		
381	63.0	51.3	83	16	1	12.1	54.4	13	120	9.0	6.24	4.0	4								PB		PB		
388	63.1	49.8	83	17	0	12.5	54.5	10	135	9.5	5.72	2.6	4										PB		
416	63.2	55.6	93	6	1	12.8	52.5	17	125	9.5	7.56	4.2	4						PB						
417	62.5	46.1	76	23	1	12.9	55.6	27	125	9.5	6.00	3.8	4		MN								PB		
418	62.6	46.7	69	31	0	12.7	56.0	27	135	9.5	6.85	5.8	4		PB	PB							PB	PB	
420	62.7	47.4	78	22	0	12.7	55.3	27	130	9.5	5.59	3.2	4		PB								PB		
421	63.4	52.1	87	13	0	12.2	54.8	27	135	9.5	6.46	4.5	4										PB		
422	63.4	50.3	80	20	0	12.2	54.6	17	125	9.5	6.90	4.1	4										PB		

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 16

QUALITY DATA OF DURUM FIELD PLOT SAMPLES A/ 1979 CROP

STATE=CALIFORNIA STATION=TULELAKE NURSERY=FIELD-PLOT

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_PE_	VAL
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.8	27	135	9.0	6.67	4.1	1
MEXICALI 75	61.5	53.5	86	14	0	12.1	54.0	23	115	8.0	7.17	5.8	3
MODOC	64.8	50.5	85	15	0	13.2	51.0	17	115	9.0	7.71	5.7	4
LEEDS	63.5	45.2	74	26	0	13.8	52.3	17	130	9.0	6.22	4.8	4
942/1	63.7	46.9	67	32	1	11.9	53.4	30	90	7.5	7.11	4.6	1
942/3	63.1	57.8	89	10	1	11.9	53.6	17	100	7.5	6.61	5.4	1
942/4	63.5	52.1	82	17	1	11.5	53.0	23	110	8.5	5.90	5.6	1
942/9	62.3	45.7	53	44	3	12.0	55.4	20	115	9.0	5.38	4.6	1
942/10	65.6	44.6	71	28	1	11.9	53.2	23	115	9.0	6.05	2.9	4
942/11	64.0	44.4	74	24	2	12.2	52.9	20	105	7.5	6.57	4.0	1
942/13	62.2	45.2	66	32	2	11.0	54.7	10	105	7.5	6.31	6.5	1
942/14	63.0	45.5	73	26	1	12.5	50.5	23	120	9.0	6.80	4.8	3
942/20	64.8	44.6	68	29	3	13.3	51.8	13	100	7.5	8.55	3.5	1
942/22	63.4	53.2	86	12	2	12.7	52.9	27	120	8.0	6.74	4.7	3
942/23	64.4	48.8	85	13	2	12.0	54.2	13	130	9.5	6.87	4.3	4
942/29	63.9	54.3	87	12	1	11.6	53.3	17	125	9.0	5.14	4.8	4
942/38	61.9	51.3	80	18	2	12.7	52.8	23	110	8.0	6.65	5.1	1
942/43	63.1	44.2	64	34	2	12.4	53.6	17	130	9.5	6.13	2.7	4
942/48	63.9	52.6	89	10	1	12.1	52.5	17	105	8.0	7.37	4.9	1
942/50	64.7	45.2	80	19	1	13.4	52.7	30	110	7.5	6.42	4.4	1
942/61	63.6	49.5	80	19	1	12.6	51.2	17	120	7.5	5.38	6.1	3
942/73	63.1	46.7	78	22	0	11.5	54.4	13	95	7.5	6.29	5.8	1
942/75	62.9	45.7	76	24	0	11.4	55.0	13	95	6.0	6.78	6.5	1
942/82	63.6	50.3	79	20	1	11.9	53.9	17	85	7.0	6.25	5.7	1
942/83	62.8	51.5	87	12	1	14.0	53.2	37	90	6.0	4.95	6.3	1
942/84	62.3	53.8	84	15	1	11.0	52.5	17	125	9.0	5.44	5.6	4
942/88	61.7	55.2	82	16	2	12.2	55.8	13	95	6.0	7.41	7.9	1
942/90	62.6	40.5	52	47	1	12.9	53.2	20	110	8.0	5.16	5.0	1
942/96	62.4	49.0	73	26	1	14.4	54.1	20	125	9.0	6.20	5.6	4
948/1	63.9	46.5	82	18	0	13.1	50.7	10	120	8.5	4.80	4.7	3
948/5	63.2	45.0	74	25	1	12.8	52.2	10	135	9.5	5.51	5.2	4
948/6	64.3	44.4	64	35	1	11.5	54.6	17	120	9.0	4.88	6.8	4
948/7	63.1	42.7	56	43	1	12.0	53.3	10	125	9.5	5.18	5.3	3
948/8	63.9	46.9	75	24	1	12.7	52.2	17	110	9.0	6.05	4.5	1
948/10	64.3	39.2	41	57	2	11.9	55.7	20	125	9.5	5.90	7.7	1
948/12	63.6	50.3	80	20	0	13.3	53.9	13	115	9.0	4.95	9.8	3
948/13	63.6	42.2	62	37	1	12.5	53.5	13	120	9.0	6.26	6.3	4
948/14	63.8	47.8	74	26	0	10.9	55.4	10	125	9.0	5.96	8.3	4

VARIETY	__TW	_KW	_LG	_SM	_PR	_AG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD		MN	MJ	PB						PB		YS
MEXICALI 75	PB							MN	PB	PB	PB	YS
MODOC						MN		MN			PB	YS
LEEDS		PB								PB		
942/1		PB	PB					MJ	MN	PB		
942/3								MJ	MN	PB	PB	
942/4								MJ		PB	PB	
942/9		PB	MJ	PB				MN		PB		
942/10		MN						MN		PB		
942/11		MN		PB				MJ	MN	PB		
942/13		PB	PB	PB				MJ	MN	PB	MN	
942/14		PB				MN				PB		
942/20		MN	PB	PB		PB		MJ	MN			
942/22				PB					PB	PB		
942/23				PB						PB		
942/29										PB		
942/38				PB				MJ	PB	PB		
942/43		MN	MN	PB						PB		
942/48								MJ	PB	PB		
942/50		PB						MJ	MN	PB		
942/61						PB			MN	PB	PB	
942/73		PB						MJ	MN	PB	PB	
942/75		PB						MJ	MJ	PB	MN	
942/82								MJ	MJ	PB	PB	
942/83							MN	MJ	MJ	PB	MN	
942/84										PB	PB	
942/88				PB				MJ	MJ	PB	MN	
942/90		MJ	MJ					MJ	PB	PB		
942/96										PB	PB	
948/1		PB				MN				PB		
948/5		MN								PB	PB	
948/6		MN	MN							PB	MN	
948/7		MN	MJ							PB	PB	
948/8		PB						MJ		PB		
948/10		MJ	MJ	PB						PB	MN	
948/12								MN		PB	MN	
948/13		MN	MN							PB	MN	
948/14										PB	MN	

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 17

QUALITY DATA OF DURUM FIELD PLOT SAMPLES A/ 1979 CROP

STATE=CALIFORNIA STATION=TULELAKE NURSERY=FIELD-PLOT

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.8	27	135	9.0	6.67	4.1	3		MN	MJ							PB		YS
MODOC	65.3	50.0	82	17	1	13.4	50.5	27	115	9.0	6.46	7.2	3						PB		MJ		PB	MN	YS
LEEDS	64.4	42.2	62	37	1	13.9	52.0	20	125	9.0	6.09	5.5	4		MN								PB	PB	
948/19	64.2	47.6	74	25	1	11.5	54.7	7	120	9.0	6.13	5.8	4								PB		PB	PB	
948/20	64.0	53.5	85	15	0	12.5	55.6	13	115	9.0	5.16	11.1	3								MJ		PB	MN	
948/21	63.3	51.5	85	14	1	12.3	54.6	17	115	9.0	5.34	8.5	3								MJ		PB	MN	
948/22	64.5	44.6	66	32	2	12.0	53.4	23	105	8.5	5.90	7.1	1		PB						MJ	PB	PB	MN	
948/24	63.2	46.1	73	26	1	12.4	52.9	17	110	9.0	6.80	6.7	1								MJ		PB	MN	
948/26	63.5	50.3	79	20	1	11.9	53.6	13	95	7.5	7.24	7.1	1								MJ	MJ	PB	MN	
948/27	62.9	46.9	71	28	1	11.6	53.5	17	130	9.5	5.49	7.9	4										PB	MN	
948/29	63.8	52.4	81	18	1	12.9	53.1	13	115	9.0	7.62	8.3	3								MJ	MN		MN	
948/32	63.1	46.9	70	28	2	12.7	55.9	20	115	9.0	7.06	6.8	3								MJ		PB	MN	
948/35	64.0	44.6	68	31	1	12.3	52.1	7	120	9.0	3.41	7.6	4		PB						PB		PB	MN	
948/38	64.5	47.1	70	30	0	12.3	53.8	23	100	8.0	6.13	8.1	1								MJ	MN	PB	MN	
948/39	64.7	48.3	82	17	1	12.5	53.5	17	105	8.0	5.67	7.0	1								MJ	MN	PB	MN	
948/40	63.4	50.3	67	31	2	12.8	52.2	30	95	7.5	6.72	6.5	1								MJ	MJ	PB	MN	
948/43	64.2	46.9	73	26	1	13.3	55.4	13	115	8.5	5.85	7.1	3								MJ	PB	PB	MN	
GERANDO V2-466	61.6	45.8	74	26	0	12.3	51.7	27	110	8.0	6.31	6.9	1	MN							MJ	MN	PB	MN	

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 18 QUALITY DATA OF DURUM FIELD PLOT SAMPLES A/ 1979 CROP

STATE=NORTH_DAKOTA STATION=WILLISTON NURSERY=FIELD-PLOT

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
CROSBY	59.5	30.2	8	85	7	16.4	50.7	7	145	10.0	6.2	6.4	4		PB										YS
RUGBY	59.9	31.3	8	83	9	16.7	52.4	10	145	10.0	5.6	6.7	4				PB						PB	PB	YS
WARD	60.1	33.7	10	84	6	16.8	52.1	3	150	10.0	5.3	7.0	3										MN	PB	YS
BOTNO	61.2	31.3	8	86	6	15.8	52.5	13	145	10.0	5.3	6.4	3										MN		
EDMORE	60.9	36.6	16	80	4	16.4	52.5	17	160	9.5	6.6	7.2	4									PB		PB	
CALVIN	61.2	32.2	6	86	8	15.6	52.4	13	160	10.0	4.8	7.4	3										MJ	PB	
CANDO	60.0	28.6	3	87	10	15.7	52.1	7	150	10.0	6.4	7.1	4		MN	FB	PB							PB	
COULTER	60.1	31.2	5	87	8	15.9	51.6	13	150	10.0	5.7	7.4	4										PB	PB	
ROLETTE	62.6	36.1	18	80	2	16.4	51.4	7	140	10.0	5.6	6.6	4								MN		PB	PB	
VIC	61.4	36.6	20	76	4	16.3	53.1	7	150	10.0	6.0	6.6	4											PB	
D 763	61.5	34.7	15	83	2	16.6	51.7	10	150	10.0	6.0	5.8	4												
D 771	61.4	30.7	8	84	8	15.7	52.7	23	150	10.0	7.2	6.9	4		PB									PB	
D 773	60.3	30.3	8	84	8	14.7	51.9	20	155	10.0	7.5	6.6	4		PB									PB	
D 774	60.9	34.0	5	88	7	14.2	53.7	13	150	10.0	7.4	6.7	4											PB	
D 775	58.7	30.4	6	82	12	15.3	52.6	20	160	10.0	7.8	6.4	4		PB		MN								
D 7224	61.3	34.8	12	82	6	14.2	53.5	13	155	9.5	6.8	6.3	4									PB			
D 7483	60.4	32.7	14	84	2	15.3	50.6	10	155	10.0	6.6	6.3	4												
D 75140	59.1	29.9	8	87	5	16.8	50.7	10	165	10.0	5.2	6.9	3		PB								MN	PB	
D 75171	59.0	29.5	3	91	6	16.5	50.7	13	160	10.0	7.9	6.6	4		PB	PB								PB	
D 75184	60.8	36.9	35	63	2	16.8	52.6	17	145	10.0	6.1	6.1	4												
D 75209	61.1	32.4	11	86	3	16.5	50.8	17	140	10.0	7.1	6.7	4								MN			PB	
DT 427	60.3	33.7	13	83	4	16.4	53.6	10	160	10.0	7.4	6.9	4											PB	

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 19 QUALITY DATA OF ADVANCED DURUM NURSERY SAMPLES A/ 1979 CROP

STATE=CALIFORNIA STATION=TULELAKE NURSERY=ADVANCED

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.9		135				4												YS
W 79107 158-2	62.5	64.1	92	8	0	12.0	62.0		105				1								MJ				
W 79107 158-16	63.0	59.9	91	9	0	12.3	60.0		100				1								MJ				
W 79107 158-20	62.5	58.1	92	8	0	12.1	58.0		105				1								MJ				
W 79107 158-33	62.0	64.1	92	7	1	12.4	58.0		100				1								MJ				
W 79107 158-44	61.5	62.1	90	9	1	11.9	61.0		95				1	PB							MJ				
W 79107 158-48	62.0	60.2	88	11	1	12.4	59.0		95				1								MJ				
W 79107 158-57	61.0	65.4	94	5	1	14.7	59.0		100				1	PB							MJ				
W 79107 158-60	62.5	61.3	94	6	0	13.8	59.0		95				1								MJ				
W 79107 158-71	62.0	57.8	89	11	0	12.3	57.0		105				1								MJ				
W 79107 158-79	62.0	64.9	95	4	1	14.4	57.0		95				1								MJ				
W 79107 158-82	63.0	59.2	94	6	0	12.8	56.0		95				1								MJ				
W 79107 158-89	63.0	58.1	94	6	0	13.9	58.0		95				1								MJ				
W 79107 158-102	62.5	58.8	81	19	0	12.4	61.0		105				1								MJ				
W 79107 158-106	63.0	62.1	91	9	0	11.9	59.0		95				1								MJ				
W 79107 158-110	63.0	56.2	79	20	1	11.6	60.0		105				1								MJ				
W 79107 158-135	62.0	58.8	88	12	0	13.7	58.0		105				1								MJ				
W 79107 158-140	63.0	57.3	81	18	1	12.3	61.0		100				1								MJ				
W 79107 158-153	64.0	57.1	87	13	0	12.5	58.0		105				1								MJ				
W 79107 158-159	64.0	61.3	88	11	1	13.1	59.0		105				1								MJ				
W 79107 158-161	62.0	59.9	92	8	0	13.2	59.0		110				1								MJ				
W 79107 158-169	62.0	61.0	91	9	0	13.0	59.0		105				1								MJ				
W 79107 158-178	63.5	58.5	91	9	0	13.8	58.0		105				1								MJ				
W 79107 158-185	64.0	56.8	91	9	0	12.9	59.0		105				1								MJ				
W 79107 158-196	62.0	59.5	88	12	0	12.3	57.0		100				1								MJ				
W 79107 158-205	62.0	58.5	89	10	1	13.7	58.0		90				1								MJ				
W 79107 158-218	64.0	60.6	91	9	0	12.6	58.0		95				1								MJ				
W 79107 158-228	62.0	60.6	90	10	0	12.3	58.0		100				1								MJ				
W 79107 158-241	63.0	58.8	89	11	0	12.8	61.0		95				1								MJ				
W 79107 158-248	64.0	64.1	92	8	0	12.7	57.0		100				1								MJ				
W 79107 158-253	63.5	62.5	92	7	1	12.4	60.0		100				1								MJ				
W 79107 158-259	62.0	63.3	88	11	1	13.1	59.0		100				1								MJ				
W 79107 158-273	61.5	62.9	91	9	0	13.1	66.0		100				1	PB							MJ				
W 79107 158-301	62.0	60.6	90	10	0	12.3	58.0		100				1								MJ				
W 79107 158-309	62.5	61.7	92	8	0	12.3	58.0		100				1								MJ				
W 79107 587-13	63.5	60.2	92	8	0	13.5	60.0		95				1								MJ				
W 79107 587-24	64.0	58.5	90	10	0	11.6	62.0		100				1								MJ				
W 79107 587-30	65.0	59.5	88	12	0	11.1	61.0		100				1								MJ				
W 79107 587-47	64.0	61.7	95	5	0	12.7	56.0		100				1								MJ				
W 79107 587-58	63.0	55.2	88	12	0	12.4	58.0		100				1								MJ				
W 79107 587-66	62.5	58.1	87	13	0	13.3	61.0		100				1								MJ				
W 79107 587-88	62.5	51.3	82	18	0	13.2	60.0		95				1								MJ				
W 79107 587-108	65.0	57.1	90	10	0	12.7	52.0		95				1						MN		MJ				
W 79107 587-137	63.0	56.2	93	7	0	13.0	59.0		100				1								MJ				
W 79107 587-164	62.5	59.2	94	6	0	13.3	60.0		115				1								MJ				
W 79107 587-182	61.0	52.4	88	12	0	13.5	55.0		95				1	PB							MJ				
W 79107 728-3	62.0	49.8	79	20	1	12.2	60.0		70				1								MJ				
W 79107 728-5	62.0	54.1	84	16	0	14.1	59.0		70				1								MJ				
W 79107 822-8	60.5	46.1	73	26	1	11.3	57.0		100				1	MN							MJ				
W 79107 822-13	61.5	48.5	72	26	2	11.4	57.0		85				1	PB							MJ				
W 79107 822-26	61.5	44.6	78	21	1	11.3	58.0		105				1	PB							MJ				
W 79107 822-44	60.5	55.6	87	12	1	12.9	59.0		95				1	MN							MJ				

(CONT'D)

TABLE 19 (CONT'D) QUALITY DATA OF ADVANCED DURUM NURSERY SAMPLES A/ 1979 CROP

STATE=CALIFORNIA STATION=TULELAKE NURSERY=ADVANCED

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
W 79107 822-64	59.5	55.9	92	7	1	11.0	59		90				1	MJ							MJ				
W 79107 822-66	63.0	52.9	87	13	0	11.9	57		100				1								MJ				
W 79107 822-69	60.5	63.3	92	7	1	13.0	59		95				1	MN							MJ				
W 79107 822-76	62.0	50.0	74	24	2	11.2	56		100				1								MJ				
W 79107 822-88	62.0	61.0	86	13	1	11.8	58		105				1								MJ				
W 79107 822-111	61.5	53.2	82	17	1	11.5	59		100				1	P3							MJ				
W 79107 822-119	62.0	51.3	65	34	1	11.5	58		100				1								MJ				
W 79107 822-159	60.0	52.1	68	30	2	12.0	57		110				1	MN							MJ				
W 79107 822-172	59.5	51.5	76	23	1	11.3	58		110				1	MJ							MJ				
W 79107 822-178	64.0	52.4	83	17	0	11.6	58		100				1								MJ				
W 79107 822-196	62.0	49.3	80	20	0	12.0	57		90				1								MJ				
W 79107 822-204	63.0	58.5	83	16	1	11.9	60		105				1								MJ				
W 79107 822-215	60.5	57.1	84	15	1	12.4	59		110				1	MN							MJ				
W 79107 822-226	60.5	52.6	75	24	1	11.5	58		115				1	MN							MJ				
W 79107 822-233	63.0	52.1	80	20	0	11.7	60		95				1								MJ				
W 79107 822-260	60.0	43.3	45	52	3	11.9	57		95				1	MN		PB					MJ				
W 79107 822-272	60.0	50.0	70	28	2	11.5	60		105				1	MN							MJ				
W 79107 822-275	62.0	54.1	82	16	2	11.2	59		90				1								MJ				
W 79107 822-290	62.0	57.8	84	14	2	10.9	58		100				1								MJ				
W 79107 822-341	63.0	57.3	86	12	2	11.6	61		95				1								MJ				
W 79107 822-344	63.0	58.5	88	10	2	12.5	62		100				1								MJ				
W 79107 822-381	63.0	56.5	84	15	1	11.5	60		110				1								MJ				
W 79107 822-420	61.5	57.3	88	11	1	12.3	58		105				1	PB							MJ				
W 79107 822-425	61.5	53.5	84	15	1	11.5	58		100				1	PB							MJ				
W 79107 822-433	62.0	55.9	86	14	0	11.7	56		115				1								MJ				
W 79107 822-435	61.0	50.3	74	25	1	11.2	57		95				1	PB							MJ				
W 79107 830-4	62.0	50.5	72	27	1	12.6	54		100				1								MJ				
W 79107 830-6	62.0	54.9	86	14	0	13.5	55		115				1								MJ				
W 79107 830-13	60.5	51.5	63	35	2	11.5	53		110				1	MN					PB		MJ				
W 79107 830-35	62.0	52.1	78	21	1	11.8	53		100				1						PB		MJ				
W 79107 830-38	59.5	47.6	52	46	2	11.1	58		100				1	MJ							MJ				
W 79107 830-42	58.0	46.3	54	44	2	11.4	52		115				1	MJ					MN		MJ				
W 79107 830-50	62.0	51.5	72	28	0	12.5	52		115				1						MN		MJ				
W 79107 830-57	62.0	47.1	56	43	1	11.9	51		100				1						MJ		MJ				
W 79107 830-74	62.0	51.5	65	34	1	12.0	50		125				2						MJ		MJ				
W 79107 830-83	62.0	48.8	64	35	1	11.3	53		105				1						PB		MJ				
W 79107 830-96	63.0	49.8	72	27	1	12.3	57		110				1								MJ				
W 79107 830-100	60.0	43.7	57	41	2	10.5	60		100				1	MN							MJ				
W 79107 830-104	59.0	46.9	49	48	3	11.4	60		105				1	MJ							MJ				
W 79107 830-116	59.0	47.1	55	43	2	11.1	61		100				1	MJ							MJ				
W 79107 830-121	62.0	44.1	49	50	1	11.4	57		105				1								MJ				
W 79107 830-122	63.5	47.6	55	44	1	11.1	58		110				1								MJ				
W 79107 830-126	62.5	48.3	66	32	2	11.0	57		95				1								MJ				
W 79107 830-137	62.0	50.5	65	34	1	12.9	60		105				1								MJ				
W 79107 830-148	62.0	52.9	73	27	0	11.5	60		110				1								MJ				
W 79107 830-153	61.0	50.8	66	33	1	11.8	60		95				1	PB							MJ				
W 79107 830-163	59.0	46.3	50	49	1	11.5	58		110				1	MJ							MJ				
W 79107 830-171	61.0	46.1	58	40	2	11.5	59		100				1	PB							MJ				
W 79107 830-181	63.0	49.8	79	20	1	12.8	58		105				1								MJ				
W 79107 830-185	62.0	53.8	78	21	1	12.7	58		110				1								MJ				
W 79107 830-189	61.5	49.5	69	30	1	12.3	57		105				1	PB							MJ				
W 79107 830-194	62.0	52.6	82	17	1	12.3	59		115				1								MJ				
W 79107 830-199	61.5	52.9	77	22	1	13.3	55		120				1	PB							MJ				

(CONT'D)

TABLE 19 (CONT'D)

QUALITY DATA OF ADVANCED DURUM NURSERY SAMPLES A/ 1979 CROP

STATE=CALIFORNIA STATION=TULELAKE NURSERY=ADVANCED

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
W 79107 830-208	61.0	47.6	54	44	2	11.6	57		95				1	PB							MJ				
W 79107 830-210	62.0	57.1	80	19	1	13.3	67		105				1								MJ				
W 79107 830-213	60.0	48.3	64	35	1	12.0	63		110				1	MN							MJ				
W 79107 830-214	62.0	49.0	64	34	2	11.9	61		100				1								MJ				
W 79107 830-220	62.5	59.9	90	9	1	13.4	60		120				1								MJ				
W 79107 830-225	59.5	53.5	80	20	0	13.5	60		120				1	MJ							MJ				
W 79107 830-236	61.0	46.5	59	40	1	12.0	62		120				1	PB							MJ				
W 79107 830-241	61.5	50.5	68	31	1	11.6	63		100				1	PB							MJ				
W 79107 830-246	59.5	47.1	56	43	1	11.8	61		100				1	MJ							MJ				
W 79107 830-261	60.0	44.8	39	60	1	11.7	58		105				1	MN		MN					MJ				
W 79107 830-273	60.5	50.3	65	34	1	11.3	62		100				1	MN							MJ				
W 79107 830-286	62.0	49.5	64	35	1	11.3	62		115				1								MJ				
W 79107 830-296	51.5	40.5	40	57	3	12.0	59		105				1	PB	PB	MN					MJ				
W 79107 830-305	62.5	48.3	58	41	1	11.9	60		100				1								MJ				
W 79107 830-320	59.0	44.6	50	48	2	11.6	58		120				1	MJ							MJ				
W 79107 849-2	63.5	54.9	88	12	0	13.0	60		100				1								MJ				
W 79107 849-3	63.0	57.3	87	12	1	13.4	63		100				1								MJ				
W 79107 849-17	62.0	56.8	89	10	1	13.4	64		90				1								MJ				
W 79107 849-20	62.0	57.8	90	10	0	13.3	64		90				1								MJ				
W 79107 849-36	63.5	57.1	89	11	0	14.5	63		105				1								MJ				
W 79107 849-40	63.0	56.8	90	10	0	13.7	63		105				1								MJ				
W 79107 849-45	62.0	57.8	92	8	0	15.0	63		105				1								MJ				
W 79107 849-48	62.5	57.8	94	6	0	15.0	64		105				1								MJ				

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 20

QUALITY DATA OF ADVANCED DURUM NURSERY SAMPLES A/ 1979 CROP

STATE=CALIFORNIA STATION=TULELAKE NURSERY=ADVANCED

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.9		135				4												YS
A79-1531	63.5	46.1	74	26	0	11.4	62.0		115				1								MJ				
A79-1532	63.5	46.7	74	25	1	11.5	62.0		115				1								MJ				
A79-1533	63.5	45.8	70	30	0	11.3	59.0		115				1								MJ				
A79-1534	63.5	45.2	68	32	0	11.1	59.0		120				1								MJ				
A79-1535	63.5	44.4	65	34	1	11.6	60.0		115				1								MJ				
A79-1536	63.5	47.1	72	28	0	10.5	59.0		115				1								MJ				
A79-1537	63.5	47.1	71	28	1	10.6	57.0		115				1								MJ				
A79-1538	64.0	45.7	67	33	0	10.3	58.0		115				1								MJ				
A79-1539	63.5	46.1	68	32	0	10.6	62.0		115				1								MJ				
A79-1540	63.5	44.4	65	34	1	11.3	60.0		115				1								MJ				
A79-1541	63.0	47.8	73	26	1	11.1	58.0		115				1								MJ				
A79-1542	63.5	46.3	75	25	0	11.1	58.0		115				1								MJ				
A79-1543	64.0	46.7	72	28	0	11.1	59.0		120				1								MJ				
A79-1544	63.0	47.4	70	29	1	10.9	58.0		115				1								MJ				
A79-1545	64.0	45.0	68	32	0	10.7	58.0		120				1								MJ				
A79-1546	63.0	47.8	76	24	0	11.4	57.0		120				1								MJ				
A79-1547	64.0	46.9	74	26	0	10.9	58.0		120				1								MJ				
A79-1548	63.5	46.3	70	30	0	10.8	62.0		115				1								MJ				
A79-1549	63.5	46.1	69	30	1	10.7	58.0		120				1								MJ				
A79-1550	64.0	43.9	64	36	0	10.8	58.0		120				1								MJ				
A79-1551	63.5	46.7	74	26	0	10.8	58.0		115				1								MJ				
A79-1552	64.0	47.4	75	25	0	11.1	55.0		115				1								MJ				
A79-1553	64.0	46.5	70	30	0	10.3	58.0		120				1								MJ				
A79-1554	64.0	46.7	74	26	0	11.2	59.0		120				1								MJ				
A79-1555	63.0	44.6	61	39	0	10.9	59.0		120				1								MJ				
B79-1556	63.0	48.5	78	22	0	10.4	58.0		115				1								MJ				
B79-1557	63.5	47.4	72	27	1	10.4	56.0		115				1								MJ				
B79-1558	63.0	45.7	71	29	0	10.8	59.0		120				1								MJ				
B79-1559	63.0	46.3	69	30	1	11.1	58.0		115				1								MJ				
B79-1560	64.0	44.1	66	34	0	10.7	58.0		120				1								MJ				
B79-1561	64.0	46.5	74	25	1	11.3	60.0		115				1								MJ				
B79-1562	63.5	47.4	73	26	1	10.5	57.0		120				1								MJ				
B79-1563	64.0	46.3	74	26	0	10.8	57.0		120				1								MJ				
B79-1564	64.0	47.6	74	25	1	11.0	59.0		120				1								MJ				
B79-1565	64.0	45.5	68	31	1	10.9	58.0		115				1								MJ				
B79-1566	64.0	48.8	75	24	1	11.2	64.0		110				1								MJ				
B79-1567	64.0	48.5	77	22	1	11.4	63.0		105				1								MJ				
B79-1568	64.0	47.8	74	26	0	10.7	54.0		115				1								MJ				
B79-1569	64.0	47.6	72	27	1	11.4	58.0		115				1								MJ				
B79-1570	64.0	47.6	74	26	0	11.3	55.0		115				1								MJ				
B79-1571	64.0	47.4	74	25	1	11.0	56.0		115				1								MJ				
B79-1572	64.0	47.1	74	26	0	11.6	54.0		115				1								MJ				
B79-1573	64.0	47.6	72	28	0	11.9	56.0		115				1								MJ				
B79-1574	64.0	46.3	74	25	1	11.6	57.0		115				1								MJ				
B79-1575	64.0	46.5	73	26	1	12.1	55.0		115				1								MJ				
B79-1576	64.0	48.1	76	24	0	12.3	58.0		110				1								MJ				
B79-1577	64.0	47.8	75	25	0	12.2	58.0		115				1								MJ				
B79-1578	64.0	48.1	74	26	0	12.2	59.0		115				1								MJ				
B79-1579	64.0	46.7	74	26	0	12.2	58.0		115				1								MJ				
B79-1580	64.0	46.9	72	28	0	12.4	56.0		115				1								MJ				
C79-1581	62.5	47.4	77	23	0	11.9	59.0		110				1								MJ				

(CONT'D)

TABLE 20 (CONT'D) QUALITY DATA OF ADVANCED DURUM NURSERY SAMPLES A/ 1979 CROP

STATE=CALIFORNIA STATION=TULELAKE NURSERY=ADVANCED

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
C79-1582	62.5	47.6	76	24	0	12.3	62		110				1								MJ				
C79-1583	62.0	48.1	73	27	0	12.1	59		110				1								MJ				
C79-1584	62.0	47.4	70	30	0	11.9	61		110				1								MJ				
C79-1585	62.0	46.7	68	32	0	12.5	58		110				1								MJ				
C79-1586	62.0	48.8	76	24	0	12.8	59		110				1								MJ				
C79-1587	62.5	48.3	78	22	0	12.6	59		105				1								MJ				
C79-1588	62.5	47.6	76	24	0	12.6	59		110				1								MJ				
C79-1589	62.5	46.3	72	28	0	13.2	59		115				1								MJ				
C79-1590	63.0	47.4	72	28	0	12.8	59		110				1								MJ				
C79-1591	63.0	49.5	78	22	0	12.9	59		120				1								MJ				
C79-1592	62.5	48.8	77	23	0	12.8	60		110				1								MJ				
C79-1593	63.0	48.3	77	23	0	13.5	62		110				1								MJ				
C79-1594	63.0	48.5	75	25	0	13.2	60		115				1								MJ				
C79-1595	63.0	47.1	73	27	0	13.3	60		110				1								MJ				
C79-1596	63.0	48.1	74	26	0	13.0	61		115				1								MJ				
C79-1597	62.5	46.5	76	24	0	13.3	60		110				1								MJ				
C79-1598	63.0	46.9	58	42	0	13.6	61		110				1								MJ				
C79-1599	62.0	46.3	75	25	0	14.0	61		115				1								MJ				
C79-1600	62.5	46.5	74	26	0	14.1	61		115				1								MJ				
C79-1601	63.0	48.5	73	27	0	13.7	61		110				1								MJ				
C79-1602	63.0	49.3	75	25	0	13.8	61		110				1								MJ				
C79-1603	63.0	47.6	74	26	0	13.7	62		110				1								MJ				
C79-1604	63.0	48.8	71	29	0	14.0	60		110				1								MJ				
C79-1605	63.0	46.9	74	26	0	14.1	61		110				1								MJ				
D79-1606	61.5	48.5	82	17	1	13.0	63		105				1	PB							MJ				
D79-1607	62.0	49.3	79	20	1	12.9	63		105				1								MJ				
D79-1608	63.0	50.0	81	18	1	12.6	61		105				1								MJ				
D79-1609	62.0	47.1	75	25	0	12.8	63		105				1								MJ				
D79-1610	62.0	46.7	75	24	1	13.2	62		105				1								MJ				
D79-1611	63.0	51.8	84	16	0	13.2	61		105				1								MJ				
D79-1612	62.5	49.8	83	16	1	12.7	61		105				1								MJ				
D79-1613	62.5	49.3	80	19	1	13.3	58		105				1								MJ				
D79-1614	62.5	50.3	82	18	0	13.5	59		105				1								MJ				
D79-1615	62.5	48.8	79	20	1	13.1	60		110				1								MJ				
D79-1616	63.0	51.0	83	16	1	13.8	61		110				1								MJ				
D79-1617	62.5	51.8	80	19	1	13.3	61		105				1								MJ				
D79-1618	63.0	49.8	79	21	0	13.3	63		105				1								MJ				
D79-1619	62.5	50.0	82	18	0	13.8	58		105				1								MJ				
D79-1620	62.0	47.6	77	22	1	13.6	61		105				1								MJ				
D79-1621	63.0	49.8	79	20	1	13.3	60		105				1								MJ				
D79-1622	63.0	48.3	79	20	1	13.8	62		105				1								MJ				
D79-1623	63.0	48.3	80	20	0	13.6	61		110				1								MJ				
D79-1624	62.5	48.5	78	22	0	13.9	61		110				1								MJ				
D79-1625	63.0	47.6	78	21	1	14.1	61		100				1								MJ				
D79-1626	63.0	50.8	82	18	0	14.0	60		110				1								MJ				
D79-1627	63.0	50.3	80	20	0	14.2	61		110				1								MJ				
D79-1628	63.0	49.0	77	22	1	13.8	62		105				1								MJ				
D79-1629	63.0	49.8	80	20	0	14.3	59		110				1								MJ				
D79-1630	62.5	48.5	76	24	0	14.3	59		110				1								MJ				

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 21

QUALITY DATA OF ADVANCED DURUM NURSERY SAMPLES A/ 1979 CROP

STATE=CALIFORNIA STATION=TULELAKE NURSERY=ADVANCED

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.9		135				4						PB						YS
MODOC	63.0	39.2	43	55	2	13.1	59.0		110				1		PB						MJ				YS
SENTRY	63.0	44.6	63	36	1	13.8	56.0		105				1								MJ				
79-245	63.5	45.5	72	28	0	13.2	58.0		95				1								MJ				
79-246	64.0	50.8	85	15	0	12.8	58.0		95				1								MJ				
79-247	63.0	51.8	81	19	0	12.5	58.0		95				1								MJ				
79-248	64.0	51.8	86	14	0	12.9	63.0		100				1								MJ				
79-249	63.0	44.8	66	34	0	12.7	57.0		105				1								MJ				
79-250	63.0	51.5	77	23	0	12.2	57.0		95				1								MJ				
79-251	63.0	45.2	60	40	0	12.0	54.0		95				1						MN		MJ				
79-252	64.0	48.5	76	24	0	12.5	56.0		105				1								MJ				
79-253	64.0	50.0	79	21	0	11.8	56.0		100				1								MJ				
79-256	62.0	46.5	45	53	2	11.9	56.0		100				1								MJ				
79-257	63.5	51.0	75	25	0	12.4	56.0		115				3								MN				
79-258	63.0	52.9	83	17	0	12.4	57.0		110				1								MJ				
79-259	64.0	47.6	60	40	0	12.3	55.0		100				1						PB		MJ				
79-260	64.0	48.1	67	32	1	13.1	57.0		105				1								MJ				
790261	63.0	44.6	62	38	0	12.9	55.0		115				3						PB		MN				
79-262	64.0	47.8	60	40	0	12.6	54.0		100				1						MN		MJ				
79-263	63.0	51.3	74	25	1	11.9	54.0		110				1						MN		MJ				
79-264	63.0	46.7	50	48	2	12.8	59.0		105				1								MJ				
79-265	62.0	50.3	55	44	1	12.3	57.0		105				1								MJ				
79-266	60.5	48.3	42	56	2	13.1	55.0		95				1	PB		PB			PB		MJ				
79-267	64.0	50.3	67	32	1	12.3	56.0		110				1								MJ				
79-268	64.0	58.3	82	18	0	12.0	56.0		90				1								MJ				
79-269	62.0	37.7	27	71	2	11.8	61.0		95				1		MN	MJ					MJ				
79-270	61.5	46.5	74	25	1	13.2	59.0		115				3	PB							MN				
79-271	63.0	54.9	84	15	1	13.1	55.0		95				1						PB		MJ				
79-272	61.0	46.9	54	45	1	13.9	53.0		100				1	PB					MJ		MJ				
79-273	62.0	48.1	55	44	1	12.9	56.0		100				1								MJ				
79-274	63.0	48.5	75	24	1	12.5	53.0		100				1						MJ		MJ				
79-275	62.0	46.5	65	35	0	12.9	54.0		105				1						MN		MJ				
79-276	62.0	44.1	47	51	2	12.6	51.0		105				1						MJ		MJ				
79-277	61.0	51.3	71	28	1	11.5	59.0		95				1	PB							MJ				
79-278	63.0	54.6	81	18	1	12.0	56.0		105				1								MJ				
79-279	62.0	48.5	56	42	2	12.1	54.0		100				1						MN		MJ				
79-280	62.0	42.7	44	55	1	12.3	56.0		105				1								MJ				

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 22 QUALITY DATA OF ADVANCED DURUM NURSERY SAMPLES A/ 1979 CROP

STATE=WASHINGTON STATION=ROYAL_SLOPE NURSERY=ADVANCED

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.9		135				4												YS
T 7500020012	63.0	39.8	34	64	2	12.3	65.0		105				1		PB	MJ					MJ				
T 7500038012	64.0	44.2	58	41	1	11.8	64.0		120				1								MJ				
T 7500062012	64.0	42.6	53	46	1	12.4	59.0		110				1								MJ				
T 7500140012	64.0	42.0	41	58	1	11.7	66.0		110				1			MN					MJ				
T 7500223012	65.0	40.8	62	31	7	12.1	61.0		120				1		PB		MN				MJ				
T 7500259012	64.0	44.4	70	26	4	13.0	59.0		110				1				PB				MJ				
T 7600103012	64.0	41.8	42	57	1	12.5	63.0		115				1			PB					MJ				
T 7600106012	64.0	41.2	58	41	1	12.2	59.0		115				1		PB						MJ				
T 7600154012	64.0	37.6	24	74	2	11.6	62.0		115				1		MN	MJ					MJ				
WA 006292012	63.0	40.0	42	57	1	12.1	59.0		120				1		PB	PB					MJ				
T 7600317012	62.0	50.8	75	24	1	12.7	64.0		115				1								MJ				
T 7600326012	62.0	47.1	68	31	1	12.6	63.0		110				1								MJ				
T 7600372012	65.0	52.9	85	14	1	13.6	62.0		120				1								MJ				
T 7600455012	63.0	46.7	54	45	1	12.3	64.0		120				1								MJ				
WA 006292012	63.0	38.6	38	62	0	12.1	58.0		115				1		MN	MN					MJ				
T 7600554012	63.0	41.2	44	55	1	12.2	61.0		105				1		PB	PB					MJ				
T 7600555012	62.0	40.8	40	59	1	12.2	60.0		105				1		PB	MN					MJ				
T 7600557012	63.0	39.4	44	55	1	12.9	60.0		120				1		MN	PB					MJ				
T 7600558012	63.0	40.3	45	54	1	12.7	59.0		110				1		PB	PB					MJ				
T 7600566012	62.0	41.3	51	48	1	12.2	61.0		120				1		PB						MJ				
T 7600574012	63.0	44.1	62	37	1	12.1	62.0		105				1								MJ				
T 7700040012	61.0	44.8	71	29	0	14.7	61.0		110				1	PB							MJ				
T 7700051012	63.0	42.4	57	42	1	12.6	64.0		110				1								MJ				
T 7700053012	62.0	45.0	58	41	1	12.5	62.0		105				1								MJ				
T 7700185012	59.0	38.8	17	79	4	12.2	51.0		125				1	MJ	MN	MJ	PB		MJ		MJ				
T 7700187012	61.0	39.5	19	79	2	11.2	59.0		120				1	PB	PB	MJ					MJ				
T 7700192012	63.0	45.2	59	40	1	11.9	63.0		125				2								MJ				
T 7700193012	63.0	47.4	63	36	1	11.9	60.0		120				1								MJ				
T 7700195012	60.0	42.7	40	59	1	12.2	61.0		115				1	MN		MN					MJ				
T 7700196012	60.0	41.7	52	47	1	12.2	59.0		110				1	MN							MJ				
T 7700197012	60.0	42.0	29	69	2	11.2	53.0		115				1	MN		MJ			PB		MJ				
T 7700225012	63.0	45.7	64	35	1	11.8	58.0		110				1								MJ				
WA 006292012	62.0	38.6	36	63	1	12.6	58.0		120				1		MN	MN					MJ				
T 7700226012	62.0	42.4	56	43	1	11.9	57.0		105				1								MJ				
T 7700234012	61.0	43.7	30	69	1	11.9	64.0		115				1	PB		MJ					MJ				
T 7700240012	62.0	49.0	68	31	1	12.1	65.0		105				1								MJ				
T 7700253012	61.0	45.7	32	68	0	11.9	66.0		115				1	PB		MJ					MJ				
T 7700254012	62.0	43.9	60	39	1	10.8	61.0		115				1								MJ				
T 7700255012	63.0	47.6	67	33	0	11.6	64.0		115				1								MJ				
T 7700259012	63.0	53.5	76	23	1	11.8	64.0		120				1								MJ				
T 7700384012	63.0	46.7	74	26	0	12.9	59.0		100				1								MJ				
T 7700461012	62.5	46.7	46	53	1	13.6	61.0		115				1								MJ				
T 7700463012	62.0	44.2	15	84	1	13.8	62.0		115				1			MJ					MJ				
T 7700466012	61.0	50.3	78	21	1	15.1	60.0		100				1	PB							MJ				
T 7700473012	61.0	45.0	35	63	2	12.6	64.0		115				1	PB		MJ					MJ				
T 7700474012	59.0	38.2	8	90	2	12.8	64.0		110				1	MJ	MN	MJ					MJ				
WA 006292012	61.0	35.2	17	81	2	13.3	59.0		115				1	PB	MJ	MJ					MJ				

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 23 QUALITY DATA OF SPECIAL DURUM SAMPLES A/ 1979 CROP

STATE=ARIZONA STATION=BRUCE_CHURCH_FARM NURSERY=SPECIALS

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.0	23	135	9.5	9.46	4.9	4												YS
MEXICALI BC 79	63.3	62.1	92	8	0	10.8	55.5	23	115	9.0	6.31	4.2	1								MJ	PB	MJ		
MEXICALI BC 78	62.9	59.9	87	12	1	13.1	59.1	37	115	8.5	7.30	5.4	1							MN	MJ	MN	PB	PB	
PRODURA BC 79	64.8	53.8	85	15	0	12.1	59.3	37	90	6.0	4.38	3.7	1							MN	MJ	MJ	MJ		
1000 D BC 78	61.0	49.3	35	64	1	13.8	57.7	33	100	8.0	7.58	6.1	1	PB		MJ				MN	MJ	MJ		PB	
1000 D BC 79	61.9	52.4	82	17	1	11.4	55.7	37	105	8.0	6.50	4.2	1							MN	MJ	MJ	MN		

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 24

QUALITY DATA OF SPECIAL DURUM SAMPLES A/ 1979 CROP

---------------------------------- STATE=ARIZONA STATION=CUMMING_AND_SONS NURSERY=SPECIALS ----------------------------------

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.0	23	135	9.5	9.46	4.9	4												YS
ALDURA	62.5	45.2	45	54	1	13.0	58.3	47	135	9.5	6.03	5.0	1			PB				MJ			MJ		
MEXICALI	61.4	50.5	62	35	3	13.1	58.3	43	125	9.0	6.96	4.7	1	PB						MJ	MJ	PB	MN		
1000 D	59.2	38.5	46	50	4	13.2	56.0	27	115	9.0	7.95	4.7	1	MJ	MN		PB				MJ	PB			

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 25

QUALITY DATA OF SPECIAL DURUM SAMPLES[A/] 1979 CROP

-- STATE=ARIZONA STATION=TOM_HOWELL NURSERY=SPECIALS --

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.0	23	135	9.5	9.46	4.9	4												YS
CRANE	63.0	46.3	69	30	1	12.3	57.9	37	95	7.5	5.40	4.0	1							MN	MJ	MJ	MJ		
MEXICALI	63.8	53.2	82	17	1	12.2	60.2	33	120	8.0	7.02	5.2	1							MN	MJ	MJ	PB	PB	
PRODURA	64.7	52.9	86	13	1	13.7	58.4	27	90	7.5	4.69	8.4	1								MJ	MJ	MJ	MN	
1000 D	61.7	44.2	68	30	2	13.2	57.5	27	105	8.0	7.02	4.7	1	PB							MJ	MJ	PB		

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 26

QUALITY DATA OF SPECIAL DURUM SAMPLES[A/] 1979 CROP

STATE=OREGON STATION=KLAMATH_FALLS NURSERY=SPECIALS

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.9		135				4												YS
MODOC	62.0	41.8	52	46	2	15.2	54.0		115				2								MJ				YS
CD 1895	57.5	29.9	56	40	4	12.6	59.0		110				1	MJ	MJ		PB				MJ				
CM 1894	62.0	54.1	73	25	2	11.9	60.0		115				2								MJ				
CM 9799	62.0	43.9	55	43	2	12.3	60.0		100				1								MJ				
CM 10143	63.0	50.5	70	29	1	11.3	61.0		90				1								MJ				
CM 17142	60.0	42.6	61	35	4	11.6	52.0		95				1	MN			PB		MN		MJ				
TL 75-393	61.5	44.4	65	33	2	14.0	58.0		120				3								PB				
TL 75-935	61.0	39.2	38	59	3	13.1	59.0		120				3	PB	PB	MN					PB				
TL 75-397	61.5	41.8	54	44	2	13.6	59.0		120				3								PB				
TL 75-408	61.5	47.4	69	29	2	13.1	58.0		120				3								PB				
TL 75-409	61.5	45.8	57	41	2	12.6	58.0		115				2								MJ				

A/ See Table 1 for explanation of abbreviations and symbols.

TABLE 27 QUALITY DATA OF SPECIAL DURUM SAMPLES A/ 1979 CROP

STATE=WASHINGTON STATION=ROYAL_SLOPE NURSERY=SPECIALS

VARIETY	_TW_	_KW_	LG	MD	SM	_PR_	SEEX	SP	DU	_VI_	_FR_	_RE_	VAL	__TW	_KW	_LG	_SM	_PR	_MG	_SP	_DU	_VI	_FR	_RE	SD
1979 STANDARD	63.2	42.7	50	48	2	14.5	54.9		135				4												YS
P 750 5359	62.0	44.2	58	41	1	12.4	61.0		120				1								MJ				
P 750 5404	62.0	39.1	29	70	1	13.1	59.0		105				1		MN	MJ					MJ				
P 750 5418	62.5	46.3	71	28	1	13.4	55.0		90				1								MJ				
P 750 5427	62.0	41.5	68	32	0	12.4	59.0		105				1		PB						MJ				
P 750 5428	62.0	42.9	69	31	0	12.8	58.0		105				1								MJ				
P 750 5446	60.0	42.7	71	28	1	13.9	60.0		105				1	MN							MJ				
P 750 5449	60.0	45.2	73	26	1	12.8	59.0		95				1	MN							MJ				
P 750 5451	63.0	46.7	65	34	1	13.2	61.0		115				1								MJ				
WA 006292	61.0	39.7	34	65	1	12.8	61.0		120				1	PB	PB	MJ					MJ				
P 750 5481	62.0	44.2	71	29	0	13.9	55.0		105				1								MJ				
P 750 5482	63.0	45.8	68	31	1	12.8	59.0		115				1								MJ				
P 750 5502	62.5	45.5	68	31	1	12.6	58.0		115				1								MJ				
WA 006292	61.5	40.2	41	58	1	12.4	58.0		120				1	PB	PB	MN					MJ				
CI 015070	61.0	32.7	8	88	4	11.7	60.0		115				1	PB	MJ	MJ	PB				MJ				
P 750 5445	63.0	49.3	76	23	1	12.8	58.0		115				1								MJ				
P 750 5541	63.0	51.8	89	11	0	13.3	57.0		110				1								MJ				
P 750 5552	62.0	46.3	65	34	1	12.4	57.0		105				1								MJ				
P 750 5556	62.0	39.1	48	50	2	11.9	58.0		110				1		MN						MJ				
P 750 5557	62.0	46.5	73	26	1	13.7	57.0		110				1								MJ				
P 750 5564	61.5	47.6	76	23	1	12.2	59.0		115				1	PB							MJ				
P 750 5569	62.0	44.6	63	36	1	12.3	60.0		115				1								MJ				
P 750 5576	62.5	47.1	78	21	1	11.7	55.0		105				1								MJ				
P 750 5587	63.0	45.0	72	27	1	13.1	58.0		120				1								MJ				
P 750 5589	64.0	42.9	60	39	1	11.9	55.0		100				1								MJ				
P 750 5591	62.0	45.8	74	26	0	12.2	53.0		100				1						PB		MJ				
P 750 5597	63.0	46.7	69	31	0	12.8	56.0		120				1								MJ				
WA 006292	61.0	38.9	31	68	1	12.3	57.0		120				1	PB	MN	MJ					MJ				

A/ See Table 1 for explanation of abbreviations and symbols.